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Centanaest Combined Anaesthetic Apparatus

The Centanaest Combined Anaesthetic Apparatus is designed for the administration of any of the following anaesthetics: Nitrous Oxide, Cyclopropane, Ether, Chloroform, Trilene and Oxygen by open, semi-open or closed circuit technique.

The Cabinet is attractively finished in green enamel, with all bright parts chrome-plated. Two drawers are provided for the storage of Accessories. The whole unit being mounted on four-inch castors.

A feature of the Machine is the fact that prior to using the Carbon Dioxide Absorber, it is necessary to disconnect the Ether and Trilene Vapourisers thus preventing the accidental use of Trilene in a closed circuit with Carbon Dioxide absorption by Soda Lime.

A Coxeter-Mushin Mark II Carbon Dioxide Absorber is incorporated.

The Apparatus accommodates:

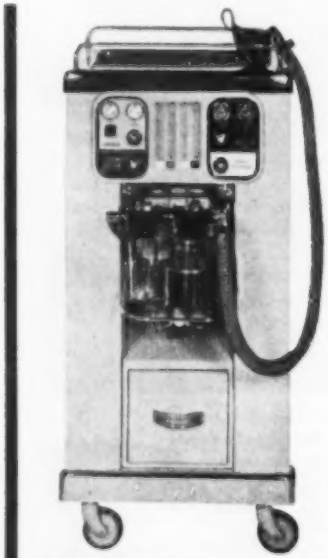
2 x 10 cubic feet Oxygen Cylinders;

2 x 200 gallons Nitrous Oxide Cylinders;

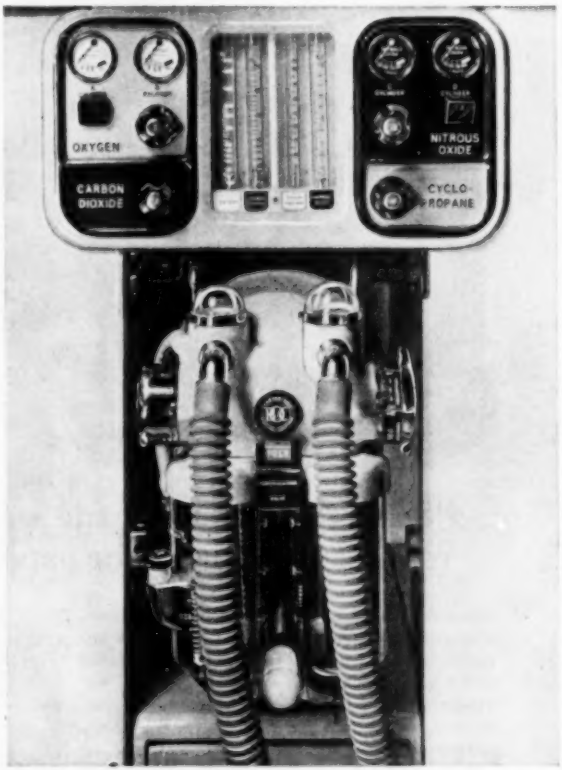
1 x 2-lb. or 4-lb. Carbon Dioxide Cylinders;

and 1 x 25, 50 or 100 gallons Cyclopropane Cylinder.

These are accommodated in recesses on either side of the Machine and are connected by means of screw clamp yokes.



The Machine assembled for the administration of Nitrous Oxide, Ether, Chloroform or Trilene/Oxygen combination by semi-closed method, the standard Magill Re-breathing Unit being used.



The control panel which incorporates a Coxeter Quadruple Rotameter Unit for accurate flow-rate measurement of the Gases. Flow control knobs for Oxygen, Carbon Dioxide, Nitrous Oxide and Cyclopropane are conveniently situated, and By-pass Buttons are provided for "flooding" Oxygen and Nitrous Oxide. Independent control gauges are provided for each Oxygen and Nitrous Oxide Cylinder.

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THE SICKLE CELL TRAIT

ITS CLINICAL SIGNIFICANCE

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It has been known for some time that persons whose red cells show the sickling abnormality fall into 2 classes. On the one hand there are those with the characteristic anaemia, and those liable to develop sickle cell anaemia though they may not be in a typical attack at the time of examination. In this group of anaemic and potentially anaemic patients the red cells sickle with extreme readiness when deprived of oxygen, and sickle cells can often be found in smears made from the peripheral blood. On the other hand, there is a group of persons whose red cells can be induced to sickle when the haemoglobin is reduced, though less readily than in the anaemic group. There are no sickle cells in the circulating blood, and these subjects do not develop sickle cell anaemia. This abnormality is known as the sickle cell trait, or by the regrettable term 'sicklaemia'.

The nature of the difference between the 2 groups was not altogether clear until recently. In particular, it was not generally agreed whether intermediate stages existed between the trait and the anaemia, and authors describing various alleged ill effects of sickling did not always make it plain whether they referred to the trait or the anaemic condition. The essential difference between the groups was elucidated in 1949 [1]. By an electrophoretic method the authors showed that in sickle cell anaemia the haemoglobin in the cells is all of an abnormal variety, whereas in trait cells there is a more or less constant proportion of abnormal to normal haemoglobin in the ratio of about 2:3. There appear to be no intermediate stages. It has been known since 1923 that sickling is transmitted as a simple Mendelian dominant character.[2] In 1949 Neel [3] in America, and independently Beet [4] in Northern Rhodesia, advanced the view that sickle cell anaemia is a disease of individuals homozygous for the sickling gene. Heterozygotes show the trait but do not develop the anaemia. Pauling *et al.*[1] had in fact come to the same conclusion from their own results before Neel's work was published. By this theory, in its simple form, a patient with sickle cell anaemia must have both parents at least heterozygous for the sickling gene. There are exceptions to this; several reliable cases have been recorded [5] in which one parent of a child with the anaemia did not show the trait, and Singer [6] has reported 2 cases in which the mothers of such children did not possess it. This is important as the identity of the mother is seldom in doubt, which cannot always be said of the father. Foy and Kondi [7] are of the opinion that the anaemia occurs in a higher proportion of cases than would be expected from Neel's theory. At all events, it seems safe to say that the great majority of cases of sickle cell anaemia occur in those homozygous for the sickling gene.

We have thus 2 basic conditions: sickle cell anaemia, the deleterious effects of which no one doubts, and the sickle cell trait. On the effects of the trait on health and survival there is less agreement. Raper [8] thinks it of relatively little importance in Africa as a cause of morbidity. Henderson and Thornell [9] found that in American Negro air cadets who had passed a searching physical examination the incidence of the trait was the same as in the general Negro population. Other authors [10, 11] have regarded the trait as predisposing to intercurrent disease. Evans [12] found that in 302 fit West African soldiers the incidence of sickling was 15.5%, whereas in 259 hospital admissions for various acute and chronic diseases the rate of sickling was 25%. The difference between his percentages is about 4 times the standard error and is thus significant. Evans also found that in a group of 46 patients admitted with respiratory diseases (pneumonia, tuberculosis, pleurisy and lung abscess) the rate was 28.3%. This rate, however, does not differ significantly from the incidence of 25% in hospital admissions as a whole. These findings were not confirmed by Findlay *et al.*[13] in West Africa, who found very similar rates in fit men and hospital cases, including a long series with pneumonia. Other authors have described various alarming manifestations such as ulceration of the legs,[14] thromboses and sudden death,[15] which are said to result from the sickling abnormality; they may occur in the absence of anaemia, though whether they are ever found in heterozygotes is not stated. Apart from its clinical importance, the question of the ill effects of the trait is of great theoretical interest. It is not at all clear at present how the frequency

of the sickling gene in populations is kept up in the face of natural selection, and to what extent selection operates against the trait as distinct from the anaemic condition.

INVESTIGATION

During an investigation of the incidence of sickling in some Bantu peoples of South Central Africa, an opportunity occurred to examine the clinical effects of the trait in a mining population with certain advantages for the purpose.

Material. The population consists of adult Bantu males employed by an asbestos mining company at Shabani, Southern Rhodesia. They are drawn from a wide area of south Central Africa, including Southern and Northern Rhodesia, Portuguese East Africa, Nyasaland and Tanganyika. Tribal variations in sickling incidence are very marked and will be the subject of another paper. Almost all the subjects are young to middle-aged adults; there are very few elderly persons and none under the age of about 16 years. All have passed a routine physical examination on engagement.

Most of the sicklers are drawn from territories north of the Zambesi River, where the incidence of sickling is higher. The mining population is in some respects a selected group, because of the medical examination and the fact that its members who have come from a distance to get work are probably above the average in health and initiative. To assess the importance of selection in this population I have compared my figures for sickling incidence in 2 tribes with those of Beet,[10] who examined the same tribes in their home surroundings (Table I). The differences between our results are not statistically significant, and it is probable, therefore, that the selection which has occurred in making up the mining population does not discriminate to any great degree against sicklers.

TABLE I: COMPARISON OF RESULTS WITH THOSE OF BEET[10]

Tribe	*Investigator*						*Difference*	*Standard Error of Difference*	*Difference / S.E.*
	Beet			*Brain*					
	Number Examined	*Number of Sicklers*	*% of Sicklers*	*Number Examined*	*Number of Sicklers*	*% of Sicklers*			
Angoni ..	359	33	9·2	108	7	6·5	2·7	3·1	0·9
Chewa ..	522	65	12·5	111	10	9·0	3·5	3·4	1·0

TABLE II: HAEMOGLOBIN LEVELS IN SICKLERS AND NON-SICKLERS

	Number Examined	*Haemoglobin, % Haldane (100% = 13·8 gm. per 100 c.c.)*		*Standard Deviation, %*
		Range	*Mean*	
Sicklers ..	30	92—131	109	10·9
Non-Sicklers	30	87—140	109	10·7

I think it reasonably certain that all the sicklers discovered in this population are heterozygous for the sickling gene, and not anaemic individuals in remission. I have seen no case of sickle cell anaemia in the mining population. All its members are adult, and individuals homozygous for the gene appear seldom to survive to adult life among the Bantu.[16] As an additional check the haemoglobin levels of 30 of the sicklers have been measured and compared with those of a control group of normal subjects. The results (Table II) show that there is no significant difference between the haemoglobin levels in the sicklers and non-sicklers. The means are, in fact, identical in the 2 groups. Neel[17] has shown that in heterozygotes the haemoglobin levels are the same as in normal subjects.

Technique. Sickling was elicited by the sodium metabisulphite method of Daland and Castle.[18] Tested on a group of

TABLE III: INCIDENCE OF SICKLE-CELL TRAIT IN FIT MEN AND HOSPITAL ADMISSIONS

Group	*Number Examined*	*Number of Sicklers*	*% of Sicklers*	*Differences*	*Standard Errors of Differences*	*Difference / S.E.*
A. Medical admissions	193	6	3·11			
B. Non-medical admissions (Injuries, minor surgical conditions, and venereal diseases) ..	271	11	4·06	B—A = 0·95%	1·8	0·5
C. Fit men	923	34	3·68	C—A = 0·57%	1·5	0·4
Total (A + B + C)	1,387	51	3·68			
D. All hospital admissions: (A + B)	464	17	3·66	C—D = 0·02%	1·1	0·02
E. Fit men and non-medical admissions: (B + C)	1,194	45	3·77	E—A = 0·66%	1·5	0·5

1,000 subjects, it was found to give identical results with the tube method of Beck and Hertz.[15] It is possible that the method may very occasionally miss a sickler; there are no false positives, however.

Geographical and Tribal Distribution. The 51 sicklers discovered have the following geographical and tribal distribution: Southern Rhodesia, 6; Northern Rhodesia, 14; Nyasaland, 11; Portuguese East Africa, 18; Tanganyika, 2. The tribes represented are Angoni, Bemba, Bisa, Chewa, Chikunda, Karanga, Lala, Manyika, Ndau, Nyakyusa, Nyanja, Phimbi, Sena, Senga, Tumbuka, Tonga (Lake Shore) and Yao.

Distribution of the Trait among Fit Men and Hospital Cases. A total of 1,387 mine workers was examined at Shabani. Of these, 923 were fit men seen either on engagement or discharge from employment or in the course of periodical medical examinations; 464 were seen on admission to hospital. Of these, 271 were admitted because of injuries, minor surgical complaints and venereal diseases. The remaining 193 were admitted with medical conditions. Table III shows the incidence of the trait in these groups.

Hospital Records of Sicklers and Non-Sicklers. The mining population is served by a single hospital, and this is the only hospital to which mine workers are admitted. If a Native is absent from work with any medical or surgical complaint, he is automatically admitted to hospital; he cannot remain in his hut when ill. Thus every incapacity serious enough to interrupt work is reflected in the hospital records.

The complete hospital records of 50 sicklers (one for whom no suitable control could be found was excluded) are compared with those of a control group constructed as follows. Using a list of known non-sicklers, each sickler was paired off with a non-sickler of the same tribe,* having approximately the same length of service on the mine. Wherever possible, one engaged in the same month, or at any rate within a few months of the sickler, was selected. With a few sicklers of very long service such close approximation could not be obtained. As the unsophisticated Native never has the least idea of his age, closer equalization of age was not attempted; but the limits in the whole population are not wide. To avoid 'psychological selection' in the compilation of the control group, the medical records of the non-sicklers were not examined until after the composition of the group had been decided.

The sickling group of 50 individuals had a total length of service of 74,164 days (203 years), with a range of 10 to 8,806 days, a mean of 1,483 days and a standard deviation of 2,452 days. The control group of 50 non-sicklers had total service of 70,822 days, range 10 to 8,725 days, mean 1,417 days and standard deviation 2,319 days.

Comparison of Hospital Records. This is set out in Table IV. Days in hospital for specified complaints are expressed as percentages of the total service of each group.

TABLE IV: COMPARISON OF HOSPITAL RECORDS IN SICKLERS AND NON-SICKLERS

Reason for Admission	*Sickling Group Total Days* 74,164		*Control Group Total Days* 70,822	
	Days in Hospital	*% of Total*	*Days in Hospital*	*% of Total*
Medical				
Amoebic dysentery	31		0	
Arthritis	7		0	
Avitaminoses:				
Night blindness	4		0	
Scurvy	33		5	
Skin conditions	0		8	
Bilharziasis	49		24	
Chest diseases:				
Bronchitis and 'influenza'	75		70	
Pneumonia	157		141	
Pulmonary congestion	0		35	
Pulmonary tuberculosis	12		84	
Debility	32		0	
Malaria and pyrexia of unknown origin	29		90	
Minor medical conditions:				
Chicken-pox	0		7	
Conjunctivitis	4		26	
Coryza	15		0	
Headache	5		6	
Iritis	0		15	
Myalgia	7		31	
Pharyngitis and tonsillitis	7		17	
Pleurodynia	6		0	
Scabies	34		0	
Stomatitis	0		14	
Torticollis	5		0	
Unclassified	7		0	
Surgical				
Abscesses	0		31	
Boils	23		0	
Cellulitis	0		4	
Leg ulcers	0		20	
Tenosynovitis	16		14	
Injuries and Venereal Diseases	924		1,027	
All Medical Conditions	519	0·70	573	0·81
Diseases of the Chest	244	0·33	330	0·47
All Surgical Conditions	39		69	
Total Days in Hospital	1,482	2·00	1,669	2·36

DISCUSSION

Table III shows that there is no significant difference in the incidence of the trait between fit men and hospital admissions. There is also no significant difference between the rates in medical and non-medical admissions, and between those for medical admissions and for all others, both fit men and non-medical admissions.

It is plain from Table IV that bearers of the sickle cell trait, in this population at least, are not more liable to intercurrent disease than are normal workers. Whether they are really *less* so, as the results suggest they may be, is a question which would need more material for decision. It is interesting that Raper[8] has tentatively suggested that the trait might have a positive survival value. The part of the investigation which is summarized in Table IV was planned to consider the complete record of every sickler, whatever his length of service, and this makes a statistical assessment of the significance of differences very difficult. By taking a fixed period, such as a year, and considering the admissions during that period of every sickler with a year or more of service, results would have been readily comparable, but a great deal of material would have been lost. I hope to carry out such an investigation with a larger group of sicklers in the future.

These findings confirm the clinical impression that the sickle cell trait is not a cause of morbidity. For example, the sickler with the longest service in the group (24 years) has never been admitted to hospital at all. It is true that living conditions and diet on the mine are excellent, but sicklers and control group are equally affected and differences, if they existed, should still be obvious.

It is interesting to note that none of the sicklers, during

* With one or two rare tribes no suitable control of the same tribe could be found. A contiguous and closely related tribe was used in these cases.

his period of service, has had a thrombotic attack or anaemia severe enough to take him to hospital. These, however, are rare causes of admission in the population. The only case of leg ulcers occurred in a non-sickler. There were no deaths among the sicklers during the period of the investigation.

It seems extremely probable that most of the ill effects of sickling which have been described are manifestations of the gene in its homozygous state. Evans [12] saw several cases of sickle cell anaemia in his series, and it is possible that a proportion of his hospital admissions were homozygotes. *Adult* cases of sickle cell anaemia, for some reason, are apparently much commoner in the West African Negro [12, 18, 20, 21] than they are in the Bantu peoples, and thus a fair proportion of homozygotes in the adult West African population is to be expected. In the American Negro, who is derived from West Africa, adult cases are likewise not uncommon. It is conceivable that there might be a genetic difference between the Negro and the Bantu by virtue of which the homozygous state has severer effects in the Bantu, resulting in the early death of almost all Bantu homozygotes. That the difference is environmental is improbable, since living conditions in West Africa are apparently no better than in the Bantu tribes.

If, as seems possible from these results, it is true that heterozygotes suffer no disability, the higher incidence in children which some workers [10, 18, 22] have found may again be due to the presence of homozygotes who will die before reaching adult life, and not to negative selection against the trait. I hope to consider elsewhere the theoretical implications of these findings.

SUMMARY

An investigation of the clinical effects of the sickle cell trait in adult male Bantu mine workers is reported. Evidence is produced to show that all the sicklers considered are probably individuals heterozygous for the sickling gene.

It is shown that the incidence of the trait in hospital admissions, both medical and surgical, is the same as in fit men. The hospital records of 50 sicklers are compared with those of a control group and the conclusion drawn that the trait is not a cause of morbidity in this population.

It is suggested that various clinical manifestations of sickling which have been described may in fact be confined to individuals homozygous for the sickling gene.

I am indebted to Dr. A. J. Ireland, Principal Medical Officer, Rhodesian and General Asbestos Corporation, for permission to publish this paper; and to my wife for help with the hospital records.

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ABSTRACTS

J. Comas Funallet: *Pharmacological and Clinical Evaluation of the Oxytocic Action of Quinine Camphorsulphonate.* (*Revista Española de Obstet. y Ginecol., No. 49, February 1950.*)

Quinine intensifies uterine contractions and furthers dilatation of the cervix uteri; it has no action on the non-pregnant uterus, nor on the pregnant uterus before the time of parturition. Therefore, it cannot cause abortion; it may, however, terminate incomplete abortion. Quinine may be administered even in eclampsia, because it dilates peripheral blood vessels. Only small doses are necessary in obstetrics, so that there is no danger of undesirable complications, which may occur when large doses are given, for instance, depression of cardiac action.

The author expresses a preference for a new compound—quinine camphorsulphonate. Quinine may depress cardiac action, but camphor is antagonistic in this respect, as it is a cardiotonic. His research led him to the conclusion that the cardiotonic action of the camphor component is stronger than the depressive action of quinine.

The dosage is 100 to 200 mg. (1½ to 3 grains) every 30 minutes; when given intravenously 5 ml. of a 5% solution suffice.

The author concludes his paper with 30 case histories to illustrate the advantages of quinine camphorsulphonate.

Pathogenesis of the Jarisch-Herxheimer Reaction. Albert Heyman *et al.* (1952): Brit. J. Vener. Dis., **28,** 50.

A Herxheimer reaction was noted in approximately 40% of patients with early syphilis and in 70% of patients with neurosyphilis. Treatment with penicillin produced more frequent and severe reactions than did arsenical therapy.

A case of cerebral gumma which died after penicillin therapy showed marked congestion, acute inflammation and oedema in the nervous system.

Numerous histological studies in patients and experimental animals showed transient acute inflammation in the syphilitic lesions 4 to 6 hours after treatment. The acute process subsided in 14 to 18 hours and was not noticeable 72 hours after therapy.

The administration of ACTH did not inhibit the development of the morphological changes described above, nor did antihistaminic agents such as pyribenzamine. The Herxheimer reaction was thought to be caused by a hypersensitivity phenomenon due to the destruction of spirochaetal products.

South African Medical Journal

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EDITORIAL

PROHIBITION OF THE ADVERTISING OF NATIVE MEDICINES

The Governor-General, in terms of the Native Administration Act, 1927, has made the following extremely important regulations published as a Schedule in Government Notice No. 2416 of 24 October 1952:

'1. No person may publish or cause to be published or send or deliver or transmit or cause to be sent or delivered or transmitted—

'(a) To any person any advertisement in any newspaper, book, pamphlet, circular, poster, letter or other document referring to or describing any Native medicine which is derived from or contains or consists of, or is alleged to be derived from or to contain or to consist of the fat or any other part of the body or entrails of a human being, animal, insect, reptile or any other thing or a supernatural, legendary or mythical being.

'(b) To any Native any advertisement in any newspaper, book, pamphlet, circular, poster, letter or other document referring to or describing any substance whether in liquid, solid or powdered form, which is alleged to be capable of procuring for any person wealth or success in any undertaking or occupation or of producing in any person any disposition or attribute or immunity from, resistance against or susceptibility to, hostile agencies, supernatural powers, witchcraft or unnatural diseases,

nor may any such advertisement be made through the medium of visual or sound process.

'2. Any person who contravenes any provision of these regulations shall be guilty of an offence and liable on conviction to a fine not exceeding fifty pounds or in default of payment to imprisonment for a period not exceeding six months or to both such fine and imprisonment.'

There can be little doubt that these regulations will be difficult to implement, but they provide very necessary and much overdue machinery which should assist very materially in arresting the flood of futile and expensive propaganda being poured over those least able to resist superstition and witchcraft.

VAN DIE REDAKSIE

VERBOD OP DIE ADVERTEER VAN NATURELLE-GENEESMIDDELS

Die Goewerneur-generaal het kragtens die Naturelle-administrasie Wet, 1927, uiters belangrike regulasies uitgevaardig wat as 'n Bylae in Goewermentskennisgewing No. 2416 van 24 Oktober 1952 as volg verskyn:

„1. Niemand mag—

„(a) 'n advertensie in 'n nuusblad, boek, pamflet, omsendbrief, aanplakbiljet, brief of ander dokument waarin melding gemaak of 'n beskrywing gegee word van 'n naturellegeneesmiddel wat die vet of 'n ander deel van die liggaam of ingewande van 'n mens, dier, insek, reptiel of 'n ander ding of bonatuurlike, legendariese of mitiese wese bevat, daarvan verkry is of daaruit bestaan of na bewering bevat, daarvan verkry is of daaruit bestaan, publiseer of laat publiseer of aan enigeen stuur of aflewer of versend of laat stuur of aflewer of versend nie.

„(b) 'n advertensie in 'n nuusblad, boek, pamflet, omsendbrief, aanplakbiljet, brief of ander dokument waarin melding gemaak of 'n beskrywing gegee word van 'n stof, hetsy in 'n vloeibare, vaste of poeiervorm, wat na bewering, rykdom of sukses in 'n onderneming of beroep aan iemand kan besorg of in enigeen 'n gesindheid of eienskap of onvatbaarheid vir, weerstand teen of vatbaarheid vir vyandige invloede, bonatuurlike magte, towerny of onnatuurlike siektes, kan wek, publiseer of laat publiseer of aan 'n naturel stuur of aflewer of versend of laat stuur of aflewer of versend nie,

en so 'n advertensie mag ook nie deur middel van 'n visuele of klankproses verbrei word nie.

„2. Enigeen wat 'n bepaling van hierdie regulasies oortree, pleeg 'n misdryf en is by skuldigbevinding strafbaar met 'n boete van hoogstens vyftig pond of, by wanbetaling, met gevangenisstraf vir 'n tydperk van hoogstens ses maande of met beide die boete en gevangenisstraf.'

Daar kan min twyfel bestaan dat dit moeilik sal wees om hierdie regulasies uit te voer, maar hul voorsien die dringende en langverwagte wetgewing wat grootliks sal bydra om die stortvloed van beuselagtige en duur propaganda te keer wat diegene oorweldig wat die minste in staat is om aan bygeloof en toordery die hoof te bied.

SOOLVRATTE

JAN LION-CACHET, M.B., B.Ch.
Universiteit van Pretoria, Pretoria

Soolvratte bly nog 'n probleem. Volgens Sutton[1] is soolvratte eerste deur Gorju in sy Thèse de Paris, in 1857 beskryf.

'n Soolvrat (*verruca plantaris*) verskil van 'n gewone vrat (*verruca vulgaris*) in soverre dat dit op die voetsool geleë is en dus in vorm verander as gevolg van die druk wat daarop uitgeoefen word.

Daar is twee tipes soolvratte: Die sogenaamde ‚mosaic' vrat, eerste beskryf deur Montgomery,[2] wat 'n mosaik patroon op die voetsool maak. Die vrat is radio-resistent, het 'n horingagtige, onegalige rand, en is pynloos. Dit kom seldsaam voor.

Die gewone soolvrat is omtrent die grootte van 'n ertjie en is omring deur hiperkeratotiese weefsel. Dit verplaas die normale papillêre lyne in die huid (en daardeur word dit onderskei van 'n kallus) en het 'n sagte, vogtige sentrum, of pit, wat uit hipertrofeerde papillae bestaan.

Etiologie. Dit is al oor en oor bewys dat dit besmetlik is.[3-5]

Variot, aangehaal deur Rulison,[6] het self deur direkte kontak 'n vrat gekry. Hy het ook bewys dat dieselfde virus gewone- en soolvratte veroorsaak. Ciuffo en Serra, aangehaal deur Simons,[5] het bewys dat die besmetlike organisme filtreerbaar is. Waelsch en Fantl, aangehaal deur Simons,[5] het daarin geslaag om soolvratte oor te plant. McLaughlin en Edington[7] het, in 'n epidemie by meisies wat in 'n lakfabriek gewerk het, bewys dat dit oordraagbaar is. Ander epidemies is ook al beskryf, bv. in 'n skool vir agterlike kinders. (Morton, Barthèlèmy, Ciuffo en Ossala, aangehaal deur Simons,[5] het ook epidemies beskryf.)

Die vratte word deur 'n virus veroorsaak, wat as stippels in die vacuoles van die keratohyaline gesien kan word (Meirowsky[8]).

Vratte kom in diere voor, en is species spesifiek. Dit is dus nie moontlik om van 'n padda aan te ‚steek nie, alhoewel Biberstein[11] meen dat Schultz wél bewys van besmetting van diere gelewer het.

Vratvirusse is nie alleen species spesifiek nie, maar ook epiteliotrofies,[12] d.w.s. tas alleen selle van epiteel oorsprong aan.

Patologie. Hoe die besmetting opgedoen word, en hoe dit tot die liggaam toetree, is nie met sekerheid bekend nie. Die histo-patologiese reaksie van die weefsel teenoor die vrat work gekenmerk deur hiperkeratose. Onder die hiperkeratotiese lae is daar hipertrofeerde dermale papillae met uitgesette bloedvate.

Mikroskopies. In die sel is daar spesifieke sitologiese veranderinge,[13] en die aangetasde epiteelselle ondergaan veranderinge, onderskeibaar van alle ander vel-aandoenings.

Die patognomoniese verandering geskied in die kern as 'n ophoping basofiliese materiaal—die inklusie liggaam van Lipschitz. Hierdie materiaal is desoksiribose, en is sitologiese bewys van die teenwoordigheid van 'n vratvirus in die kern

Voorkoms. Haggart[14] meen dat uit alle pasiënte wat hul by die ‚voet-kliniek' aanmeld, 15% soolvratte het. Verskillende skrywers meen dat die siekte toeneem.[15, 16]

My indruk is dat dit onder die naturellebevolking ook toeneem. Volgens Hack[17] was soolvratte 'n groot probleem by naturellerekrute in die leër.

Geslagsvoorkoms. In blankes kom soolvratte meer dikwels in vrouens voor; volgens Rulison[6] 57.2%, en volgens Halberg, aangehaal deur Brundage,[18] in 89%. In ses jaar hospitaalpraktyk het ek nog nooit 'n soolvrat by 'n naturellevrou gesien nie.

Anti-liggaam Formasie. Anti-liggaam formasie kom in diere voor.[19] Findlay[19] het bewys dat hy immuun is nadat hy homself driekeer ingeënt het. Anti-liggaam formasie is nie voldoende om nuwe vratvorming te verhoed nie.

Spontane Verdwyning van Soolvratte. Soolvratte toon 'n neiging om spontaan te genees.[6, 11, 20] Hierdie genesing mag wees as gevolg van anti-liggaam vormasie. Daarenteen is dit bekend dat baie virussiektes selfbeperkend is as gevolg van afsterwing òf van die virus self òf van die gasheersel.

Virussiektes is intra-sellulêr, en daar anti-liggame nie die vermoë het om die selmembraan deur te dring nie, kan hulle die virusse nie vernietig nie. Hulle kan alleen herinfeksie verhoed.[6]

BEHANDELING

Sulzberger en Baer[21] meen dat daar geen afdoende behandeling vir alle soolvratte is nie, en die uiteenlopende tipes behandeling staaf hierdie mening.

Middels al gebruik:
Eksisie, kureteer, hitte (brand), koue (koolstof oksied sneeu), bytstowwe, NaOH, ens., karbolsuur, ens.
Keratolitiese middels, salisilsuur, kollodion, bismuth, elektrokoagulasie, radium, X-strale, ens.

Die literatuur hieromtrent is verwarrend. 'n Sekere middel wat by een goeie resultate gee, is by 'n ander nutteloos. Vratte toon in enige geval 'n neiging om self te genees, en psigoterapie speel ook 'n rol.

Die Rol van Psigoterapie. Bloch (aangehaal deur Vollmer[22]) het 238 gevalle met vratte behandel, waarvan 50 soolvratte was. Van die soolvratte het 88% met psigoterapie genees.

Grumach, Block, Bonjour Brocq (aangehaal deur Vollmer[22]) het almal wetenskaplike bewys van genesing met psigoterapie getoon.

Stein (aangehaal deur Biberstein[11]) het 71% genesing gekry met inspuitings van non-spesifieke substansie, nl. fisiologiese soutoplossing.

By genesende vratte en ‚getoorde' vratte, is dieselfde histologiese veranderinge gevind (Samek, aangehaal deur Vollmer[22]).

Die wetenskaplike bewyse stem ooreen met die bekende leke behandeling van vratte ‚na die maan te blaas', ens. Hierdie oorwegings bemoeilik die interpretasie van verskillende behandelings en veroorsaak die uiteenlopende

resultate verkry deur verskillende mense wat dieselfde metodes toepas.

Die naturel is vir psigoterapie vatbaar. Van dié behandeling was daar sommige wat eers deur die toordokter behandel is—sonder sukses. Miskien kom die mislukkings alleenlik by ons te lande.

Radioterapie en Bestraling. Sommige skrywers [25, 26, 29] meen dat bestraling vir 'n benigne toestand altyd sleg is. Die dosis nodig om so 'n toestand te beïnvloed is só hoog dat die normale omliggende weefsel daaronder ly. Dit is 'n maklike, gou metode, sonder dat die pasiënt opgeneem word.

Montgomery en Montgomery [24] het 583 pasiënte behandel—90% met sukses. Geen residiewe en geen radio-nekrose is verkry nie. Die area faktor is belangrik vir uitwerking van die dosis.[23]

Radio-aktiewe fosfor (P^{32}) is al gebruik in soolvratte. Die B-strale afgegee dring net deur die vel tot 'n diepte van 'n paar mm. Vyftig soolvratte is so behandel met 94% sukses.

In 20 hardnekkige gevalle ondersoek, was daar 5 voorheen sonder sukses herhaaldelik bestraal.

Diverse behandelings met salpetersuur, phenol arseen, bismuth, formaline, urea, colchicine, koolstof dioksied sneeu, hitte, keratolitiese middels, salisilsuur, podophyllin melk, sappe van verskillende euphorbia plante, is al gebruik met min of meer ooreenstemmende ondoeltreffende resultate.

Vitamine A [30] is ook sonder merkwaardige sukses gebruik. *Elektro-Kauterisasie* is ook al gebruik [28, 31, 33] met omtrent dieselfde resultate as met radium.

Chirurgie. Die toestand residiveer dikwels.[23] Dickson [34] stel voor 'n radikale wig-reseksie van die metatarsaalbeen met die onderliggende vrat in gevalle van enkele hardnekkige soolvratte—'n drastiese metode.

Haggart [14] meen dat gewone chirurgiese verwydering nie genoegsaam is nie. Wye eksisie met volle-dikte gesteelde transplantate word deur hom aanbeveel.

Skoenedrag en Soolvratte in die Naturel. Nie alle naturelle dra skoene nie. 'n Oorsig oor al die naturelle in die hospitaal op een dag het getoon dat 154 mans uit 'n totaal van 240 altyd skoene dra, 60 soms skoene by geleentheid dra, en 36 nooit skoene dra nie. Alle pasiënte met soolvratte dra skoene òf as gevolg van die soolvratte òf vice versa. Warm, sweterige toestande vererger die pyn in soolvratte.

Van die 20 pasiënte met soolvratte wat noukeurig uitgevra is omtrent hulle skoenedrag het 16 beweer dat hul vratte in die winter minder pynlik is. Twee s'n was in die winter meer pynlik, en in 2 gevalle was dit dieselfde.

Een pasiënt het vratte ontwikkel terwyl hy by 'n steenmakery gewerk het en op die warm stene moes loop, en 'n ander terwyl hy gedurig op warm as moes loop tydens sy werk op Yskor.

Drie pasiënte het soolvratte opgedoen kort nadat hulle vir die eerste keer skoene gedra het. Twee van bogenoemde gevalle het soolvratte opgedoen toe hulle by die leër aangesluit het.

Nie een van die 20 pasiënte het soolvratte gehad terwyl hulle nog kaalvoet geloop het nie.

Naturellevroue dra skoene minder pal (20% van 218 pasiënte), en meer by geleentheid (50%) as mans. Dit is miskien die rede waarom soolvratte selde by vrouens voorkom.

In 6 jaar in die hospitaal het ek nog nie een naturellevrou met soolvratte gesien nie.

Van die 20 pasiënte was daar by 5 'n familie geskiedenis van vratte.

Wye Eksisie met Thiersch Transplantaat. Omdat soolvratte so dikwels na gewone chirurgiese eksisie residiveer, het skrywer gepoog om die vratte baie wyd uit te sny en die defek met Thiersch transplantaat te bedek. Gevolglik is 4 pasiënte met hardnekkige vratte op hierdie manier

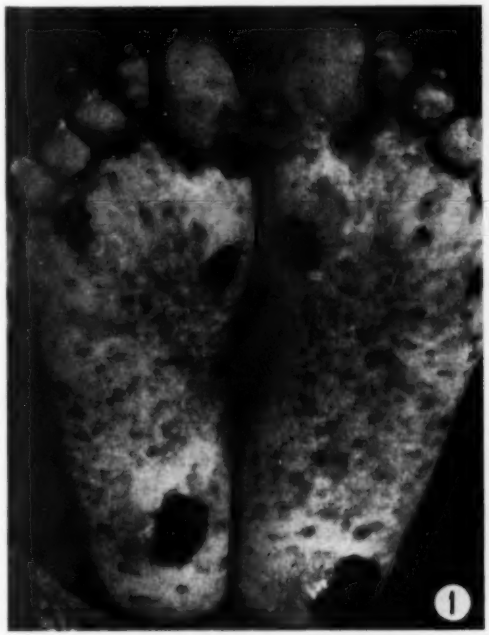

Fig. 1. Thiersch transplantaat op die voetsool met herhaling van die vrat aan die rand van die transplantaat.

VORIGE GESKIEDENIS VAN 4 GEVALLE MET THIERSCH TRANSPLANTATE BEHANDEL

Besonderhede	*Geval No. 1*	*Geval No. 2*	*Geval No. 3*	*Geval No. 4*
Geskiedenis ..	8 jaar	9 jaar	10 jaar	11 jaar
Ouderdom ..	36 „	30 „	35 „	34 „
Jare skoene gedra voor vratte gekry het ..	15 „	10 „	1 maand	2 „
Mediese behandeling (Salf) ..	4 keer	2 keer	2 keer	1 keer
Chirurgiese eksisie	4 „	3 „	1 „	2 „
Bestraling ..	1 „	1 „	—	—
Kauterisasie ..	2 „	1 „	1 keer	1 keer
X-Straal terapie (Kontak terapie)	1 „	1 „	1 „	1 „

behandel. Van die 4 pasiënte so behandel, het die transplantate baie goed geneem.

In teenstelling met die gewone mening, is 'n Thiersch transplantaat op die voetsool dik en sterk genoeg om gewig te dra. Al 4 pasiënte kon 'n maand na die operasie goed loop. Een geval kon weer voetbal speel.

Na 3-4 maande het die vratte, sonder uitsondering, residiveer—nie in die middel van die transplantaat soos verwag nie, maar om die transplantaat waar dit by die normale vel aansluit (Fig. 1). Die behandeling hiervan was eers 'n probleem.

Dit skyn dus asof plaaslike eksisie nie genoegsaam is nie, al geskied dit baie wyd.

Die etiologiese faktor verantwoordelik vir die vrat word nie deur eksisie uitgewis nie.

Dit is moontlik dat hierdie faktor in die skoenedrag teenwoordig is.

OPSOMMING

1. Soolvratte is algemeen onder naturelle mans.

2. Slegte voet higiëne speel miskien 'n rol in die ontwikkeling om die regte omstandighede te skep sodat die infeksie kan posvat.

3. Alle pasiënte met soolvratte dra skoene.

4. Die oorsaak is 'n virus, wat dieselfde is vir gewone en soolvratte.

5. Die virus is species spesifiek.

6. Die toestand is aansteeklik.

7. Anti-liggaam formasie geskied, en relatiewe immuniteit ontwikkel, maar is nie genoegsaam om met verloop van tyd nuwe vratvorming te verhoed nie.

8. Vratte toon 'n neiging om spontaan te genees.

9. Die behandeling bly 'n probleem.

10. Thiersch transplantaat na wye eksisie is onbevredigend.

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MALIGNANT DISEASE IN THE TRANSVAAL: I. CANCER OF THE SKIN

FIRST STATISTICAL REPORT FROM THE RADIATION THERAPY DEPARTMENT OF THE JOHANNESBURG GROUP OF HOSPITALS

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This report is based on clinical material drawn from both European and non-European hospitals throughout the Southern Transvaal and referred to the Radiation Therapy Department during 3 years. The data afford several unique comparisons between the behaviour of neoplastic diseases of 2 racial groups, African and European, both existing in a climatic environment very different from that generally encountered overseas. Only those cases selected for one type of treatment have been included; hence the data are of limited statistical value. Both the hereditary and environmental factors significantly affect the incidence, clinical course, radiosensitivity and prognosis of a large range of malignant tumours; hence this information may be of sufficient importance in the practical management of cancer to warrant its record.

The population of the southern half of the Transvaal may be very roughly estimated at 3,000,000; about 800,000 are Europeans (550,000 in the Witwatersrand area). The ratio

of Africans to Europeans is approximately 2.5:1, a figure somewhat lower than the average for the whole country, which must be taken into account when the relative frequencies of disease are compared. As there are also different sex incidences for some tumours, it will be useful to recall that the *sex ratio* for Europeans in the Transvaal (541,000 males to 522,000 females) is 1.04; while among the Bantu, there are 1.78 million males to 1.34 million females, a ratio of 1.33. This abnormal preponderance of males in the Bantu population probably reflects the migratory labouring class, and this must not be ignored in the clinical assessment. The relative *age incidences* of tumours will, for the purpose of this report, be presented in the form of Tables giving the number of cases of a disease appearing in each decade of life. Such information can, of course, only be assessed when viewed against the background of the normal age distribution of the population, which is reproduced in part in Table II, column b (European population of South Africa, 1946 census).[23]

The relevant social and clinical data for this report were transcribed from case records onto a simple filing card system. We subdivided our material primarily into 10 anatomical systems, with separate designations for benign conditions, and for the racial group. This system was introduced at the end of 1949, the figures for that year including all cases on follow-up, and omitting all cases lost to the follow-up at its conclusion, and are consequently not strictly comparable with succeeding years. In 1950 and 1951 all cases referred for treatment have been indexed.

A total of 3,666 cases was seen over the 3-year period; of these 2,099 malignant cases have been tabulated according to the year, anatomical system and race (Table I). It will be noted that 57.3% of all cases referred were malignant tumours, indicating an average of 700 new cancer cases annually. Of these only 21.8% occurred in the Bantu races (457 cases as compared to 1642 among Europeans, in spite of the fact that a proportion of European patients is treated elsewhere). Since the population contains about 2½ times as many Africans as Europeans, one would have expected, had the tumour incidence been equal and a similar proportion of cases referred for therapy, about 4,000 Bantu in this series. This expectation is in line with Paterson's observation [12] that for each million of the population about 1,000 new cancer cases present for radiotherapy annually. The discrepancy can be accounted for in part by the lower average age of the Bantu population, which implies a lower cancer incidence, and in part by the relative immunity of pigmented races to skin cancer, which accounts for fully ⅓ of all European cancer (Table I). If we assume that these 2 factors result in a Bantu cancer incidence of only half that of the European, a ratio similar to that existing between negroes and whites in the southern United States,[2] it still appears that at least 3 out of every 4 cases of those forms of cancer suitable for radiotherapy, occurring in the Bantu, are not referred for treatment, presumably dying without medical attention. Apart from the suffering involved, the loss of this invaluable material to medical research is regrettable.

To compensate for this serious defect in the proportions of the 2 racial groups, the last 2 columns of Table I give the incidence of cancer in each anatomical system as a percentage of all cases in the group. With a few exceptions the European and Bantu groups are seen to be roughly comparable. The exceptions, however, are noteworthy. Application of the statistical χ^2 test, indicates that in the case of the skin, the vascular system and the genito-urinary tract, the differences between Bantu and European are highly significant. Whereas carcinoma of the skin constitutes the largest single group of tumours among Europeans, accounting for fully ⅓ of all cases, it is extremely rare in the pigmented African, the 8.4% of skin lesions shown in Table I comprising several melanomas and a large proportion of albinos. Conversely, the relative frequency of Kaposi's angiosarcoma in the Bantu [10] is reflected in the figures for tumours of the vascular system. In the case of the genito-urinary system, the Bantu cancer incidence is about twice that of the European due to the very high incidence of carcinoma of the uterine cervix, confirming Higginson's findings.[7] It should also be noted that the relatively low incidence of breast cancer in the Bantu is a spurious effect due to the large preponderance of Europeans in the 1949 follow-up group, the true figures for the 2 races, based on 1950-1951, being 12.4% and 14.2% respectively. This small difference is not statistically significant.

It is now proposed to analyse the incidence of tumours in each anatomical system from the point of view of race, sex and age distribution, taking into account the histopathology, clinical stage, treatment and end results. It is, of course, realized that the end results, based on follow-up periods often as short as one year, are of limited significance. However, this report is published with the prime object of determining as far as possible the role of racial and environmental factors in the etiology and pathogenesis of malignant disease in this province and formulating tentative suggestions about the best methods for their management.

SKIN CANCER

Of the 578 cases of skin cancer presenting for therapy during the 3-year period under reveiew, 548 (95%) were in white-skinned persons, 540 in Europeans and 8 in Bantu albinos. Pigmented Africans accounted for only 5% of the series and, as will be shown below, these were usually of a bizarre nature, with atypical anatomical distribution, and not infrequently precipitated by trauma and chronic inflammatory processes. It has been shown [4, 22] that intense insolation or repeated ultra-violet irradiation are potent carcinogenic agents in pale-skinned humans and non-pigmented animals. Climatic conditions in the Transvaal can, therefore, account for the relatively higher incidence of skin cancer in Europeans (33% of all cases referred); while on the other hand, the normal pigmentation of the epidermis in the Bantu is sufficient to protect the germinal layer from the carcinogenic action of sunlight. That this difference in susceptibility to skin cancer cannot be due to a racial immunity is shown by the exceedingly high incidence of the disease among the Bantu albinos, who account for fully one-fifth of all skin cancer in the Bantu, in spite of the rarity of the albino trait in African races.

Sex Incidence. Of the 540 European cases, 65% were in men and 35% in women. This supports the insolation

TABLE I

Anatomical Group	On Follow-Up 1949		New Cases 1950		New Cases 1951		Total for 3 Years		
							Number	European	Bantu
	MALIGNANT CASES								
	European	Bantu	European	Bantu	European	Bantu		%	%
Skin	166	7	184	16	190	15	578	33·0	8·4*
Musculo-Skeletal	8	5	9	8	19	7	56	2·2	4·4
Respiratory Tract	23	4	31	12	55	17	142	6·7	7·2
Vascular System	1	10	0	3	0	8	22	·06	4·6*
Reticulo-Endothelial	31	6	44	19	33	11	144	6·6	7·9
Gastro-Intestinal	75	10	66	29	60	26	266	12·2	14·2
Genito-Urinary	62	39	103	76	127	58	465	17·7	38·0*
Endocrine Glands	7	2	7	6	4	1	27	1·1	2·0
Nervous System	20	4	14	4	21	3	66	3·3	2·4
Breast	121	6	83	17	78	28	333	17·1	11·2
Totals	514	93	541	190	587	174	2,099	1,642	457
Total Malignant	607		731		761		2,099		
Benign Cases	270		625		672		1,567		
Total Seen all Cases	877		1,356		1,433		3,666		

Ratios: Malignant—57·3%; Benign—42·7%; European—78·2%; Bantu—21·8%

*These three groups show statistically significant racial differences.

hypothesis, in that men are more often engaged in outdoor occupations. However, a similar ratio, 24 males to 14 females, appears in the Bantu group, in which sunlight cannot be incriminated, except in the cases of the albinos.

Age Incidence. The number of tumours appearing in a group of individuals exposed to the constant action of a carcinogenic agent increases continuously with increasing period of exposure. Similarly, it is to be expected that the prevalence of tumours in a susceptible population constantly exposed to sunlight would increase continuously with age. The actual number of skin cancer cases presenting in each decade of life is shown in column (c) of Table II, from which the histogram in Fig. 1 is derived. It will be noted that skin cancer is almost unknown before the age of 20, except in association with xeroderma pigmentosum. However, its incidence rises steadily with increasing age, the maximum number of cases appearing in the eighth decade. Thereafter there is a rapid fall-off due to the very small proportion of the population reaching the age of 90. If, however, we estimate the incidence of skin cancer per 100,000 population *in each decade*

TABLE II

(a) Age Group Years	(b) % Population in Each Group	(c) Number of New Cases in Group	(d) Age Specific Incidence	(e) Cases with Multiple Cancer	(f) Bantu Cases (Total)	(g) Albinos
0—9	21·52	0	0	0	1	0
10—19	17·90	0	0	0	2	1
20—29	16·22	11	6·8	0	3	2
30—39	15·56	24	15·4	3	7	2
40—49	11·02	52	47·0	14	5	2
50—59	8·40	78	92·9	24	3	0
60—69	5·76	115	200	42	6	0
70—79	2·86	154	539	57	6	1
80—89	·69	48	697	21	0	0
90—99	·05	5	1,000	1	0	0
Total	100·0	487	2,598	162	33	8

(dividing numbers in column (c) by corresponding value in column (b), Table II), we get a continually increasing incidence with age as charted in the histogram (Fig. 2).

In order that ultra-violet radiation may transform a germinal cell into a neoplastic cell, a quantum of energy must be transferred from the UV photon to a molecule within that cell. Blum has shown that ultra-violet radiation was effective as a carcinogen only at wave lengths shorter than 3200 Å; in other words, a quantum of 3.9 electron-volts is the minimum energy capable of producing the intracellular transformation. The transfer of energy is governed by the laws of quantum physics, in that it is necessarily an all-or-none, single-hit process, occurring at random throughout the irradiated cell population. The

Fig. 1. Age distribution of 487 skin cancer cases in Europeans (white column) and 33 in Bantu (black areas).

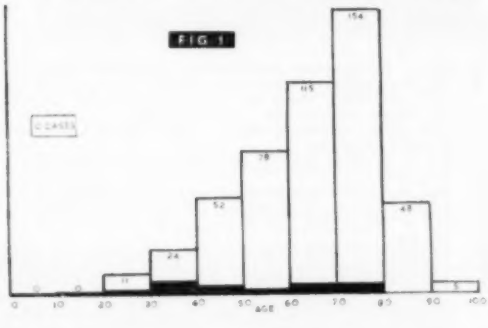
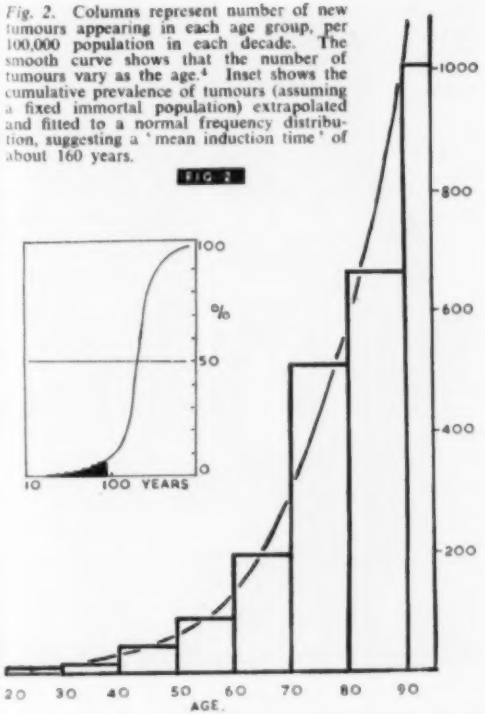


Fig. 2. Columns represent number of new tumours appearing in each age group, per 100,000 population in each decade. The smooth curve shows that the number of tumours vary as the age.[4] Inset shows the cumulative prevalence of tumours (assuming a fixed immortal population) extrapolated and fitted to a normal frequency distribution, suggesting a 'mean induction time' of about 160 years.



induction of a tumour may require more than one such an accidental 'hit'. It is then possible to calculate the rate of appearance of tumours after various periods of exposure by a statistical technique, the so-called 'stochastic model'.[4, 5, 9] Fisher and Holloman [5] showed that analysis of the age incidence of human cancer cases fitted one such hypothesis and followed the formula:

$$\text{Number of New Tumours Appearing in Given Age Increment} \propto (\text{Age})^{n-1}$$

where n is the critical number of malignant somatic cell mutations required to produce a growing tumour.

Skin cancer in the Transvaal is particularly suited for testing this model. The smooth curve in Fig. 2 is the graphical representation of Fisher and Holloman's formula for a critical colony size of 5 cells, and it obviously fits the age-specific incidence very closely. One-third of the cases in this series have more than one cutaneous epithelioma at the time of treatment (column (c), Table II), and it is of interest to note these cases fit an age-specific incidence curve with a critical value of 6 cells. The theoretical significance of this relationship will not be analysed here, but the results lend favourable support to the stochastic model for the induction of human skin cancer by solar radiation.

In the Bantu, and more particularly in the albino, the distribution of skin cancer tends more to younger age groups. The single case presenting in the first decade was a child with xeroderma pigmentosum (Fig. 3), in whom the characteristic photosensitive areas were devoid of pigment and were the origin of several histologically proved squamous cell carcinomas.

Pathology. Metastatic tumours of the skin arising from primary cancers in other sites have been excluded from this series and classified under the system in which the primary neoplasm originated. We have divided the pathology of primary skin cancer into the 5 groups shown in Table III, and typical examples are illustrated in Figs. 4-10.

While the diagnosis of skin cancer can be made clinically in the majority of cases, histological confirmation is desirable. There is still disagreement about the wisdom of

TABLE III: NUMBER OF CASES GROUPED ACCORDING TO THE HISTOLOGICAL DIAGNOSIS

	Europeans	*Total Bantu*	*Albinos*
Squamous cell carcinoma	72	17	6
Basal cell carcinoma ..	93	4	1
Melanoma	11	9	0
Hyperkeratosis	104	2	1
No biopsy	260	6	0
Total	540	38	8

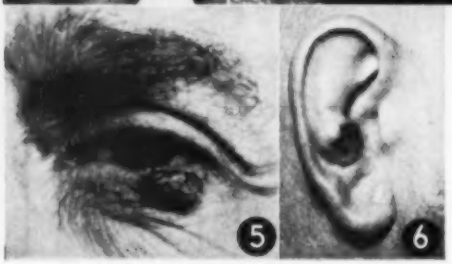


Fig. 3. Xeroderma pigmentosum in a Bantu child showing patchy depigmentation over the whole body with numerous squamous carcinomas on the face and scalp and secondary cervical glands. By kind permission of Dr. M. Rose, Dermatologist, Baragwanath Hospital.
Fig. 4. Typical multiple skin cancers in an outdoor worker.
Fig. 4a. Same patient as Fig. 4, after treatment.
Fig. 5. Basal cell carcinoma of the lower eyelid.
Fig. 6. Squamous cell carcinoma of the pinna of the ear.

biopsy, but authorities [1, 16] have stated that the procedure is safe, while Paterson and Nuttall [13] have shown that the incidence of metastases in squamous cell carcinoma is not increased by biopsy. The first 3 categories in Table III have been established microscopically. For this we are indebted to pathologists of the South African Institute for Medical Research. The diagnosis of hyperkeratosis was made clinically. It can, therefore, be taken that a definite diagnosis was established in 280 cases (52% of the series). In the non-European group, histological proof was obtained in 32 of the 38 cases.

Basal cell carcinomas, which constitute more than half the histologically proved cases in the European, are rare in the African, while melanoma is distinctly more common in the pigmented Bantu, but has not been observed in our series of albinos.

Clinical Stage. Each patient has been placed in one of 4 clinical stages on the basis of the observed extent of the disease. The staging method has been adopted from that in use at the Liverpool Radium Institute.

Stage I: A single, freely movable growth not exceeding 3 cm. in maximum diameter, with no palpable lymph nodes.

Stage II: Growth exceeding 3 cm. in diameter, freely movable on underlying structures, with no palpable lymph nodes. (Attachment to cartilage of ala nasi or pinna does not exclude from this stage.) Includes all multiple lesions conforming to the above definitions.

Stage III: Growth as in earlier stages, but with mobile discrete glands of malignant type confined to a single regional group.

Stage IV: Growth fixed to underlying muscle or bone, or fixed glands of malignant type, or glands in more than one region.

On the above basis our cases gave the stage distribution shown in Table IV.

TABLE IV: PERCENTAGE OF CASES IN VARIOUS STAGES

	Europeans	*Total Bantu*	*Albinos*
Stage I	60	12·5	0
Stage II	37*	50	75*
Stage III	2	31	25
Stage IV	1	6·5	0

*In both white-skinned groups, the majority of Stage II cases are multiple rather than advanced lesions.

It will be noted that 97% of European cases fall into the early and readily curable groups, while among the non-Europeans a much smaller proportion of cases come into this category (62.5%). This finding compares with most forms of malignant disease presenting in the Bantu, among whom the majority of cases seen fall into the later stages.

Anatomical Site. The mechanism of skin cancer induction in exposed areas (face and hands) might be explained on the basis of exposure to sunlight, but in non-exposed areas (trunk and legs) this explanation could not apply. The data in Table V show this to be a fact, with the large

preponderance of cases in the non-pigmented group appearing in the exposed areas.

TABLE V: PERCENTAGE DISTRIBUTION OF CASES IN VARIOUS ANATOMICAL SITES

	Europeans	*Total Bantu*	*Albinos*
Head and Neck ..	89	40	75
Trunk	1	17	25
Upper extremity ..	9*	9	0
Lower extremity ..	1	34	0

*These lesions occurred on the dorsum of the hand.

In the European 98% of all skin cancers occurs in exposed areas, whereas in the Bantu only 40% of cases (and of these half are the albinos) occur in these areas. The large proportion of Bantu skin malignancies occurring on the lower extremity can be explained in part by the relatively large number of melanomas in this series, and also by the frequency of atypical skin cancer in the Bantu, associated with burns and inflammatory ulcers. This interesting aspect of the disease will be discussed more fully.

Geographical Distribution. If sunlight is to be incriminated etiologically, the incidence should be greater among country dwellers than residents of the Witwatersrand. An analysis of the European cases showed, however, that 79% of cases gave a Witwatersrand address with only 21% resident in country areas. These figures may be quite erroneous, since rural patients may recently have moved into the towns; and many country patients prefer to give addresses of relatives living in the city. The ratio obtained, however, is not very different from that of the general European population distribution of the Transvaal, three-quarters of whom are resident on the Witwatersrand. It has not been possible in most cases to trace the origins of the non-European cases.

Fig. 7. Multiple solar keratoses and a typical squamous carcinoma in an albino.
Fig. 8. Squamous cell carcinoma of the leg on a pre-existing tropical ulcer in a Bantu.

Treatment. Skin cancers are curable by a variety of therapeutic measures such as surgical excision or diathermy, radium implantation or surface application, and X-ray therapy. The injudicious application of any method of treatment is responsible for failures, rather than the particular method employed. It is stressed that the first treatment is the vital one, and no effort should be spared to ensure its success, because recurrences usually entail greater problems and a smaller chance of cure.

The choice of treatment depends on the site of the lesion, its extent and the type of treatment (if any) previously administered. Usually radiotherapy is preferred (for cosmetic reasons) for growths of the face and hands (Fig. 4a), though in the hands of the expert plastic surgeon excellent results can be obtained. Surgery is usually preferred for growths on the trunk or limbs, where the healing of the scar is quicker than recovery from a brisk radiation reaction. Tod[20] reported that 90% of all skin cancers are treatable by means of radiotherapy.

Fig. 9. Basal cell carcinoma in a Bantu.
Fig. 10. Typical melanoma in a Bantu.

Whenever excision is carried out, there should be histological proof that surgery has been sufficiently radical to ensure complete removal of the tumour. When surgery has been adequate, so-called prophylactic radiation should not be given,[12] but the patient should be seen at regular intervals to ensure that there is no local recurrence or glandular involvement requiring further treatment.

When radiotherapy is employed, the same dosage levels are required for the treatment of basal cell, basi-squamous and squamous cell growths, although the basal cell is said to be more radiosensitive than the squamous cell cancer.

In treating lesions on the pinna of the ear, radium is preferred to X-ray therapy, because the latter is more liable to lead to subsequent cartilage necrosis, due to selective absorption.[18] Treatment of lesions near the inner canthus of the eye, a not uncommon site for basal cell lesions (Fig. 4), may produce stenosis of the lachrymal duct and give rise to troublesome epiphora; in these cases it is our practice to obtain the co-operation of the ophthalmologists, so that regular dilatation of the duct can be carried out. This has almost completely overcome this extremely unpleasant complication.

In the treatment of lesions of the eyelids (Fig. 5), great care is taken to protect the eye. This is accomplished by the use of special lead eyeshields, which are inserted under the eyelids during treatment.

It is common experience in treating lesions of the hands and feet that necrosis is easily produced. Lesions occurring in these sites are best treated by means of surface radium moulds.

The treatment of the regional lymph nodes is essentially surgical with the one exception of the pre-auricular lymph node, which can be adequately treated by radium implantation or X-ray therapy.

Generally speaking carcinomata arising in old scars due to burns or lupus are usually more expeditiously treated by means of surgical excision and skin grafting.

Recurrent skin cancers following surgery are more satisfactorily treated by radiotherapy, but recurrences following radiation are best treated by excision and plastic repair, as further radiation will possibly lead to necrosis.

An analysis of the treatment received by the patients has been divided into 3 main groups (Table VI).

TABLE VI

Treatment	*European*	*Non-European*	*Albinos*
1. Surgery and radiotherapy	7%	31%	12%
2. Radical radiotherapy	89%	59%	88%
3. Palliative treatment ..	4%	10%	0%

Results. No significance can be attached to cure rates due to the short interval, in the majority of cases. The 1949 figures, in particular, include a large number of cases treated as far back as 1935, and subsequently placed on the present follow-up scheme. However, among cases treated during 1950 and followed for 2 years, 85% were alive and free from disease, 5% had active primary tumours, generally new primary lesions, 1% were alive with metastases present, 5% dead of cancer and 4% dead of intercurrent disease. These figures include the 20 cases of malignant melanomas.

Discussion. Cancer of the skin is undoubtedly the most common form of malignancy in the European, accounting for 33% of all malignant cases presenting in this Department. Ackerman and del Regato [1] report that skin cancers constitute 40% of all cancer cases seen at their clinic in St. Louis, U.S.A., where climatic conditions are similar to those of the Transvaal. On the other hand the *Third Statistical Report from the Christie Hospital, Manchester*, showed that of 15,000 cancer cases seen from 1940 to 1944, only 20% affected the skin. It is generally agreed that skin cancer is due to long continued local irritation, sunlight being an obvious factor since the exposed portions of the body are the regions most affected (Table V). It has been observed to be a most common occurrence in farmers, sailors and other outdoor workers, particularly in older age groups and in the fair-skinned, often following the appearance of hyperkeratoses. The extreme case of hypersensitivity to sunlight is illustrated in xeroderma pigmentosum (Fig. 3), which often develops squamous cell skin cancer at an early age.

In non-exposed areas scars are common precursors of skin cancer, not infrequently after burns.[21] This factor is of particular importance in pigmented races, as illustrated by the atypical skin cancers in the Bantu, especially those on the lower extremity. Confirmatory observations have been published for the American Negro.[15] In Schrek's series,[15] consisting mainly of male military personnel, only 2.8% of all cancer in Negroes involved the skin (compared to 19% of a comparable group of Whites) only 60% of Negro skin cancers were on exposed areas (96% in Whites) and 25% were associated with trauma or scars (only 1% in Whites).

Less common causative factors such as chemical agents (arsenic, tar, pitch, soot and oils) have not been observed in our series, nor have we seen cases of skin cancer induced by previous exposure to roentgen rays.

The importance of racial factors in the incidence and distribution of skin cancer is shown by the fact that they account for only 8.4% of malignancies referred for therapy in the Bantu, compared with 33% in Europeans. These figures are in agreement with Schrek's data and with Hyde's observation [8] on the relatively slight susceptibility of Negroes to the development of skin cancer. Of the 38 non-European cases of skin cancer referred to this Department, 32 were admitted for detailed study and the following interesting features recorded.

There were 9 albinos, compared to 22 pigmented Bantu and one Coloured in this series. No figures are available for the number of albinos in the Native population, but it cannot be more than 1 per 1,000, so that there is an obvious preponderance in the albino group. The albino cases consisted of 6 squamous carcinomas and 3 rodent ulcers, including 2 with extensive hyperkeratoses, with 7 on the head and neck and 2 on the trunk.

The 22 cases of skin malignancy in the Bantu consisted of 9 cases of malignant melanoma, and 3 cases of sebaceous gland epithelioma (classified in Table III as 'basal cell' tumours), leaving only 11 cases of squamous carcinomas, and not a single case of typical rodent ulcer, which is in contradistinction to Gelfand's findings.[6] This unusual distribution and etiology of the cases of squamous carcinoma is of particular interest.

Only 2 of the 11 cases were on the head and neck, and one of these was an unusual anaplastic type. Of the remainder, 7 were on the lower extremity and 2 on the trunk. In all but one of these cases an etiological factor was noted: in 3 cases the squamous carcinoma was implanted on old burns and keloids, in 2 cases syphilitic scars were implicated and in one case a tropical ulcer became malignant.

The above facts with regard to the Bantu and albinos suggest that there is no racial immunity, but that a protective mechanism exists, and that even this breaks down under the strain of pathological processes.

PROPHYLAXIS

On the basis of the foregoing observations and the identification of the etiological factors, it appears that a significant proportion of skin cancers should be preventable. In the fair complexioned, and in people constantly exposed to sunlight, especially in climatic conditions characterized by a persistently high atmospheric ultra-violet level, adequate headgear, protective clothing and even the

growth of beards might afford significant protection. Early treatment of hyperkeratosis would also prevent the appearance of many skin cancers both in Europeans, and in Bantu albinos. In specially susceptible individuals a cosmetic ointment of the type described by Smithers and Wood might be useful.[17]

In the management of early extensive keratoses radiation has not been practical on account of the large skin areas involved, but preliminary reports on the use of podophyllin in the treatment of early rodent ulcers [11, 11a, 19] promise to solve this problem. Animal experiments [3] have shown the active principle of podophyllin, 'podophyllotoxin', to be effective in protecting skin from the action of chemical carcinogens. We have accordingly used a 20% podophyllin ointment in a water-soluble base applied twice daily for 7-10 days to the affected areas, in cases of pre-cancerous hyperkeratoses. This treatment produces an erythema and desquamation, not unlike that following irradiation, and usually results in disappearance of the lesion. This seems to be a particularly useful prophylactic measure, especially as it can be applied easily in country practice without recourse to expensive surgical or radiotherapeutic procedures, provided its indications are carefully considered. The use of podophyllin in established squamous cell cancer, however, can be disastrous.[11a]

SUMMARY

The relative incidence of malignant diseases referred for radiotherapy over a 3-year period has been analysed with respect to the racial and anatomical distribution of tumours.

In particular, 578 cases of skin cancer have been classified according to race, sex, age, pathology, stage, treatment and anatomical and geographical distribution. This analysis supports the hypothesis that skin cancer in white-skinned persons is caused by long-continued insolation, while in the pigmented African it is relatively uncommon and often precipitated by local injury or chronic inflammation.

On the basis of these considerations, it is suggested that skin cancer is, in part, preventable, and possible prophylactic measures have been discussed.

We wish to thank Dr. K. F. Mills, Medical Superintendent, Johannesburg Group of Hospitals, for allowing us the use of hospital records and material.

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ASSOCIATION NEWS : VERENIGINGSNUUS

PROCLAMATION

BY HIS EXCELLENCY THE HONOURABLE ERNEST GEORGE JANSEN, DOCTOR OF LAWS, GOVERNOR-GENERAL OF THE UNION OF SOUTH AFRICA

No. 213, 1952.]

ANNUAL FEE PAYABLE BY MEDICAL PRACTITIONERS AND DENTISTS.—MEDICAL, DENTAL AND PHARMACY ACT, 1928

Under the powers vested in me by sub-section (2) of section *ninety-five* of the Medical, Dental and Pharmacy Act, 1928 (Act No. 13 of 1928), I do hereby authorize the South African Medical and Dental Council to prescribe a fee of three pounds (£3) to be paid annually to the said Council by every medical practitioner and every dentist.

Proclamation No. 237 of 1946 is hereby rescinded.

GOD SAVE THE QUEEN

PROKLAMASIE

VAN SY EKSELLENSIE DIE EDELE ERNEST GEORGE JANSEN, DOCTOR IN DIE REGTE, GOEWERNEUR-GENERAAL VAN DIE UNIE VAN SUID-AFRIKA

No. 213, 1952.]

JAARLIKSE GELD BETAALBAAR DEUR GENEESHERE EN TANDARTSE.—WET OP GENEESHERE, TANDARTSE EN APTEKERS, NO. 13 VAN 1928

Kragtens die bevoegdheid my verleen by subartikel (2) van artikel *vyf-en-negentig* van die Wet op Geneeshere, Tandartse en Aptekers, 1928 (Wet No. 13 van 1928), magtig ek die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad hierby om 'n geld van drie pond (£3) voor te skryf, wat jaarliks aan genoemde Raad deur elke geneesheer en elke tandarts betaalbaar is.

Proklamasie No. 237 van 1946 word hierby herroep.

GOD BEHOEDE DIE KONINGIN

Given under my Hand and the Great Seal at Pretoria on this the Ninth day of September, One thousand Nine hundred and Fifty-two.

E. G. Jansen,
Governor-General.

By Command of His Excellency the
Governor-General-in-Council.

K. Bremer.

No. 2253.] [26 *September* 1952

SOUTH AFRICAN MEDICAL AND DENTAL COUNCIL.—AMENDMENT OF THE RULES REGARDING THE PAYMENT OF ANNUAL FEES BY MEDICAL PRACTITIONERS AND DENTISTS

The Minister of Health, in exercise of the powers vested in him by sub-section (4) of section *ninety-four* of the medical, Dental and Pharmacy Act, 1928 (Act No. 13 of 1928), has approved the following rules regarding the payment of annual fees by medical practitioners and dentists, made by the South African Medical and Dental Council under sub-section (2) of section *ninety-five* of the said Act:—

> With effect from the calendar year 1953, every medical practitioner and every dentist shall pay to the Council a fee of three pounds (£3), which fee shall be due and payable on the 1st July, in each year.

The rules published under Government Notice No. 2505 of 1946, as amended, are hereby rescinded.

Gegee onder my Hand en Grootseël te Pretoria, op hede die Negende dag van September Eenduisend Negehonderd Twee-en-vyftig.

E. G. Jansen,
Goewerneur-generaal.

Op las van Sy Eksellensie die
Goewerneur-generaal-in-rade.

K. Bremer.

No. 2253.] [26 *September* 1952

SUID-AFRIKAANSE GENEESKUNDIGE EN TANDHEELKUNDIGE RAAD.—WYSIGING VAN DIE REËLS BETREFFENDE DIE BETALING VAN JAARLIKSE GELDE DEUR GENEESHERE EN TANDARTSE

Die Minister van gesondheid het, in die uitoefening van die bevoegdheid aan hom verleen by subartikel (4) van artikel *vier-en-negentig* van die Wet op Geneeshere, Tandartse en Aptekers, 1928 (Wet No. 13 van 1928), sy goedkeuring geheg aan die volgende reëls betreffende die betaling van jaarlikse gelde deur geneeshere en tandartse wat deur die Suid-Afrikaanse Geneeskundige en Tandheelkundige Raad ingevolge subartikel (2) van artikel *vyf-en-negentig* van genoemde Wet gemaak is:—

> Met ingang van die kalendarjaar 1953, moet elke geneesheer en elke tandarts 'n geld van drie pond (£3) wat op 1 Julie in elke jaar verskuldig en betaalbaar is aan die Raad betaal.

Die reëls afgekondig in Goewermentskennisgewing No. 2505 van 1946, soos gewysig, word hierby herroep.

OFFICIAL ANNOUNCEMENTS : AMPTELIKE AANKONDIGINGS

VACANCY FOR EDITOR

Applications are invited from registered medical practitioners for the post of Editor of the South African Medical Journal and the South African Journal of Clinical Science. The salary scale is £1,500 × 50—£2,000 plus cost-of-living allowance at Public Service rates. The post is full-time and the successful applicant will be required to work at the Association's Head Office in Cape Town.

Applicants should state their experience and whether they are fully bilingual.

Applications should be addressed to the undersigned and should reach him before 31 January 1953.

A. H. Tonkin,
Secretary.

Medical House
35 Wale Street,
Cape Town.
24 October 1952.

VAKATURE VIR REDAKTEUR

Aansoeke van geregistreerde geneeshere vir die vakante betrekking van Redakteur van die Suid-Afrikaanse Tydskrif vir Geneeskunde en die Suid-Afrikaanse Tydskrif vir Kliniese Wetenskap word ingewag. Die salarisskaal is £1,500 × 50—£2,000 plus duurtetoeslag volgens Staatsdienstarief. Dit is 'n voltydse betrekking en die aangestelde persoon sal verwag word om by die Vereniging se Hoofkantoor in Kaapstad werksaam te wees.

Applikante moet vermeld watter ondervinding hulle het en of hulle volkome tweetalig is.

Aansoeke moet gerig word aan die ondergetekende en moet hom voor 31 Januarie 1953 bereik.

A. H. Tonkin,
Sekretaris.

Mediese Huis,
Waalstraat 35,
Kaapstad.
24 Oktober 1952.

MEDICAL AID SOCIETIES

The following new Medical Aid Societies were approved by Federal Council at its meeting held in Johannesburg on 18–19 September 1952:

1. Umzimkulu Sugar Company Ltd. Medical Aid Fund, 301, Smith Street, P.O. Box 43, Durban.
2. National Industrial Credit Corporation Medical Aid Society, P.O. Box 8296, Johannesburg.

Approval was also given for the re-instatement of the following Benefit Society as an approved Society allowing free choice of doctor for Specialist services only (second list in the Tariff Book):

Witbank Coalfields Benefit Society, P.O. Box 26, Witbank.

L. M. Marchand,
Assistant Secretary.

P.O. Box 643,
Cape Town.
27 October 1952.

MEDIESE HULPVERENIGINGS

Op sy vergadering van 18–19 September 1952 in Johannesburg gehou, het die Federale Raad onderstaande nuwe Mediese Hulpverenigings goedgekeur:

1. Umzimkulu Sugar Company Ltd. Medical Aid Fund, Smithstraat 301, Posbus 43, Durban.
2. National Industrial Credit Corporation Medical Aid Society, Posbus 8296, Johannesburg.

Die herstel van die volgende Siekefonds as 'n goedgekeurde Siekefonds wat vrye keuse toelaat vir spesialiteitsdienste alleenlik (tweede lys in die tarieweboek) was ook goedgekeur:

Witbank Coalfields Benefit Society, Posbus 26, Witbank.

L. M. Marchand,
Assistent Sekretaris.

Posbus 643,
Kaapstad.
27 Oktober 1952.

DELETION OF NAME IN TARIFF BOOK

At its meeting held in Johannesburg on 18–19 September 1952, the Federal Council agreed to the deletion of the name of the following Benefit Society from the list of approved Societies allowing free choice of doctor for specialist services only (Second List in the Tariff Book):

Canvas and Allied Trades Sick Fund, P.O. Box 4172, Johannesburg.

L. M. Marchand,
Assistant Secretary.

P.O. Box 643,
Cape Town.
27 October 1952.

SKRAPPING VAN NAAM IN TARIEWEBOEK

Op sy vergadering van 18–19 September 1952 in Johannesburg gehou, het die Federale Raad toegestem om die naam van die onderstaande siekefonds te skrap van die lys van goedgekeurde siekefondse wat vrye keuse toelaat vir spesialiteitsdienste (tweede lys in die Tariefweboek):

Canvas and Allied Trades Sick Fund, Posbus 4172, Johannesburg.

L. M. Marchand,
Assistent Sekretaris.

Posbus 643,
Kaapstad.
27 Oktober 1952.

PASSING EVENTS

Dr. R. Campbell Begg of Johannesburg has returned after a visit to Britain, the United States, Canada, Peru and Bolivia. He attended the triennial Congress of the International Urological Association in New York.

MARTINDALE'S EXTRA PHARMACOPOEIA, VOL. I

The attention of readers is drawn to the fact that the South African price of this publication is 57s. 6d. (including postage) and not 56s., as stated by the publishers in their advertisement.

THE BENEVOLENT FUND

The following contributions to the Benevolent Fund during September 1952, are gratefully acknowledged:—

Votive Cards: In Memory of:
Mr. Frank C. Masters *by* Dr. and Mrs. F. O. Fehrsen.
Sister J. Gibson *by* Dr. H. W. Dyke.
Mr. A. B. Kellaway *by* Dr. and Mrs. F. O. Fehrsen.

Total Amount Received from Votive Cards: £4 13 6

Services Rendered to:
The child of Dr. T. B. Forrest *by* Dr. J. W. Morgenthal.
Dr. D. Vollet by Drs. J. A. Macfadyen, H. B. Savage, T. Edmunds and H. Grant-Whyte.

Total Amount Received from Services Rendered: £13 10 0

Donations:
Members of Cape Western Branch (Collection Box) ... £4 5 9

£22 9 3

REVIEWS OF BOOKS

OPHTHALMOLOGY AND OTOLARYNGOLOGY

Progress in Ophthalmology and Otolaryngology: A Quadrennial Review. Volume 1. Edited by Meyer Wiener, M.D., A. Edward Maumenee, M.D., Percy E. Ireland, M.D. and Joseph A. Sullivan, M.D. (Pp. 666 + xiv, with illustrations. $15.00.) New York: Grune & Stratton, Inc. 1952.

Contents: Part I. Progress in Ophthalmology. 1. Basic Science in Ophthalmology. 2. Diagnosis and Treatment of Diseases of the Eye. 3. Surgery of the Eye. 4. Related Subjects in Ophthalmology. *Part II.* Progress in Otolaryngology. 1. The Ear. 2. Nose, Sinuses and Nasopharynx. 3. Larynx, Trachea-Bronchial Tree and Esophagus. 4. Allergy. Index.

This review consists of well-considered chapters, each by different authors and each on a different subject, and attempts to give a balanced account of the advances in these two specialties. In this attempt it would appear to be very successful and it certainly very happily avoids the tedious repetition of lists of authors and their works which is so common in most *Recent Advances* type of book. Each condition is thoroughly discussed by a reputed authority who does not hesitate to give his own views and his reasons for them. This makes the book eminently readable.

The basis for the use of Cortisone and ACTH is well presented and it is pointed out that in ear, nose and throat conditions, at any rate, their indiscriminate use should be delayed until further information be obtained. In recurring papillomata of the larynx, e.g. they have been of no avail and repeated removal is still our only line of treatment.

In the chapter on otitis media with effusion great stress is laid on paracentesis of the drum and removal of the accumulated fluid by inflation and suction, repeated several times, if necessary. This is a manoeuvre seldom carried out here or in England, chiefly because of the fear of introducing infection, but this, the author states, rarely happens.

The contents reflect, of course, the teaching almost exclusively of the medical schools of the North American continent and presuppose that the reader already possesses a detailed awareness of the difficulties and problems associated with diseases of the eyes, ear, nose and throat. The book is therefore not recommended to the general reader but more to the specialist in these subjects.

TERATOMAS

Atlas of Tumor Pathology: Section III—Fascicle 9, Teratomas. By Rupert A. Willis, D.Sc., M.D., F.R.C.P. (Pp. 58, with 45 figures. 50 cents.) Published by the Armed Forces Institute of Pathology under the auspices of the Subcommittee on Oncology of the Committee on Pathology of the National Research Council. 1951.

Contents: 1. Nomenclature. 2. Definition. 3. Classification. 4. Incidence. 5. Hypotheses of the Origin of Teratomas. 6. Gross. 7. Histologic. 8. Highly Organized Structures. 9. Malignant Teratomas. References.

This is *Fascicle 9* of the now familiar monographs in this fine series published under the auspices of the U.S. Armed

Forces Institute of Pathology. That Prof. R. A. Willis was asked to contribute a fascicle is a tribute both to himself and to the sponsors of the whole work. His definition of a teratoma as a true neoplasm composed of multiple tissues foreign to the part in which it arises sweeps aside at one stroke the numerous and often erroneous usages of this term.

He rejects 'embryoma' and all that that word implies, and suggests that teratomas represent areas of tissue which, during early embryonic development, escaped from the action of the primary organizer.

The text is brief but forthright and the numerous photographs and diagrams make this small monograph a reference work of great value to the pathologist.

Histological Technique

Histopathological Technic, Including a Discussion of Botanical Microtechnic. Second Edition. By Aram A. Krajian, Sc.D. and R. B. H. Gradwohl, M.D. (Pp. 362, with 131 illustrations and 7 colour plates. £2 17s. 6d.) Cape Town: P. B. Mayer. 1952.

Contents: 1. Fixation of Tissue. 2. Equipment for Section-cutting. 3. Methods of Section-Making. 4. Staining Solutions. 5. Clearing Reagents. 6. Mounting Reagents. 7. Staining Methods. 8. Special or Differential Staining Methods. 9. Botanical Microtechnic. 10. Histopathological Methods of the Central Nervous System. 11. Miscellaneous Methods.

The first edition of this work ensured its place on the bench of the working histologist—student, technician, research worker or laboratory director. It is not intended to be a reference book. Only those methods are included which, through years of experience and experiment, were found by the authors to be rapid, economical and practical. Emphasis is rightly laid on the many pitfalls in histological technique and it is recalled that the success in any manipulative branch of science is largely dependent on the worker's knowledge of hidden difficulties and their remedy.

The much neglected frozen section method in the preparation of permanent or rapid sections has been emphasized, although it has become fashionable in some quarters to decry it. No one really experienced in its usage would ever deny its place.

The section on the use of the Autotechnicon is timeous and is a recognition that mechanical methods of tissue preparation are now firmly established in laboratory routine.

This is a practical handbook of great value. There is no padding, it is well printed and illustrated and all references are documented.

Clinical Pathology

A Text-book of Clinical Pathology. Edited by S. E. Miller, M.D. (Pp. 1060 + xxvi, with 208 figures. 68s. 6d.) Fourth Edition. London: Baillière, Tindall and Cox.

Contents: 1. Blood Techniques. 2. Blood Cells. Bone Marrow Examination. 3. Anæmias, Erythrocytoses, Hæmoglobinurias, and Abnormal Hæmoglobin Compounds. 4. Laboratory Tests used in the Diagnosis and Management of Hæmorrhagic and Thromboembolic Diseases. 5. Diseases Primarily Affecting Leukocytes. 6. Blood Groups. 7. Blood Chemistry. 8. Liver Function Tests. 9. Renal Function Tests. 10. Immunologic Tests. 11. Bacteriologic Examination of Blood and Feces. 12. The Assay of Chemotherapeutic and Antibiotic Agents. 13. Diagnosis of Viral and Rickettsial Disease. 14. Blood Parasites. 15. Intestinal Parasites: Feces. 16. The Assay of Vitamins. 17. The Assay of Hormones. 18. Examination of Transudates, Exudates, Skin and Mucous Membranes. 19. The Diagnosis of Venereal Lesions. 20. Syphilis Serology. 21. Cerebrospinal Fluid. 22. Urine and Seminal Fluid. 23. Sputum. 24. Gastric and Duodenal Contents.

As 'Knacke and Palmer' this was a familiar work to all clinical pathologists. The untimely death of these two distinguished workers since the last edition in 1948 is the reason for the change in editorship. The present work has been redesigned with emphasis on basic facts, the selection of appropriate tests and the proper interpretation and evaluation of laboratory reports. Detailed descriptions of more advanced technical methods usually performed by highly skilled technical personnel have been omitted.

The haematology section, contributed by Dr. Israel Davidson and Dr. L. W. Diggs, has been greatly enlarged and includes valuable sections on the blood groups and haemorrhagic and thrombo-embolic diseases. The chapter on the assay of chemotherapeutic and antibiotic agents (Dr. Milzer) is a welcome and practical addition which surveys all the contemporary methods in detail. In addition, all the standard procedures are discussed in the appropriate sections.

That this is a most useful book to student, physician and pathologist is beyond doubt, but it implies no criticism to speculate on the numbers of similar and equally fine works which are available at the present time. The reduplication of effort, care and printing is colossal and inevitably embarrasses the reader in his choice of a satisfactory library of working handbooks.

Osteoarthritis of the Hip

Osteoarthritis of the Hip. By W. Alexander Law, O.B.E., M.D., F.R.C.S. (Pp. 87 + xi with 31 figures. 30s.) London: Butterworth & Co. (Publishers) Ltd.

Contents: Preface. 1. Definition. 2. Actiology. 3. Pathological Changes. 4. Clinical Features. 5. Conservative Treatment. 6. Minor Operative Treatment. 7. Major Operative Treatment. 8. Operative Details of Vitallium Mould Arthroplasty of the Hip. 9. Complications of Vitallium Mould Arthroplasty. 10. Results of Vitallium Mould Arthroplasty. 11. Conclusions and Summary. Bibliography and References.

The author of this monograph is well known in England for his interest in arthritis. He spent about a year at Smith Petersen's clinic in America, where he gained first-hand knowledge and experience of the operation of vitallium mould arthroplasty.

This book, which is in the main a reproduction of the author's prize-winning essay for the Robert Jones Prize of the British Orthopaedic Association in 1950, presents a survey of the condition of osteoarthritis of the hip, and the results of treatment of 160 cases submitted to vitallium mould anthroplasty. Alternative methods of treatment are mentioned *en passant*, but no attempt is made to evaluate the one against the other. It is stressed that each case of osteoarthritis should be considered on its merits and that no one method is suitable for dealing with all cases routinely.

A careful selection of patients for this operation is essential, for only with their enthusiastic co-operation can the best results be obtained.

The book is well produced, but is one mainly for the specialist in orthopaedic surgery.

An Edinburgh Practice of Medicine

The Principles and Practice of Medicine. By L. S. P. Davidson, B.A., M.D., F.R.C.P. and the Staff of the Department of Medicine and Associated Clinical Units of the University of Edinburgh. (Pp. 919 + xi. 32s. 6d.) Edinburgh: E. and S. Livingstone Ltd.

Contents: 1. Infection and Disease. 2. Diseases of the Respiratory System. 3. Disorders of the Blood and Blood-Forming Organs. 4. Diseases of the Kidney and Urinary System. 5. Diseases of the Endocrine System. 6. Nutritional Disorders. 7. Diseases of the Cardiovascular System. 8. The Chronic Rheumatic Diseases. 9. Tropical Diseases. 10. Diseases of the Digestive System. 11. Diseases of the Liver and Biliary Tract. 12. Diseases of the Pancreas. 13. Diseases of the Nervous System. Appendix—Diet Sheets. Index. Tables of Weights and Measures and Exchanges.

A new text-book of medicine is always bound to excite interest and this one by Professor Davidson and his colleagues is no exception. It has grown from the cyclostyled notes issued to students attending a course of lectures during the years of clinical study. Professor Davidson quite rightly abhors the all-too-prevalent practice of students endeavouring to take down all that the lecturer has said. This book has been compiled to take the place of these cyclostyled notes and in doing so reflects current thought and practice in Edinburgh since the contributors are drawn solely from that Medical School. If that is the sole purpose for which it was written it has succeeded. No student writing any examination in medicine in Edinburgh could afford not to have read it. The subject matter is concise, factual and reasonably up to date.

For those outside Edinburgh the book is a disappointment. It is certainly no better than some of the other text-books of medicine which are available and the reviewer could name at least two which are superior. Viewed against the needs of a student at a South African medical school the book is inadequate. The sections on tropical medicine cover too narrow a field. There is very little excuse for the omission of many infectious diseases (despite the apology in the preface). Relapsing fever, tetanus, anthrax, leprosy and the common intestinal worms, to mention only a few, are not even mentioned. Diseases due to physical and chemical agents are also omitted as are diseases of bone. These are only a few examples. There are many more. One may envy the medical students in Edinburgh at having their lectures in book form and could wish that we could afford to do the same for our students. But their book is not adequate for our needs.

AIDS TO BIOLOGY

Aids to Biology. By R. G. Neill, M.A. Third Edition. (Pp. 288 + vii, with 21 figures. 6s.) London: Baillière, Tindall & Cox. 1952.

Contents: 1. Classification. 2. Water and Other Fluids in Organisms. 3. Nutrition. 4. Respiration. 5. Excretion. 6. Reproduction and Sex. 7. Growth. 8. Movement and Skeletons. 9. Co-ordination. 10. Evolution. Index.

METABOLISM

Metabolism: Clinical and Experimental. Vol. 1. No. 5. September 1952. New York: Grune & Stratton.

Contents: 1. Significance of Lactescence in Blood Serum. 2. Uptake of Fat by Adipose Tissue in Vitro. 3. Up to Four Decades of Hyperglycemia in Diabetics Without Loss of Carbohydrate Tolerance. 4. Excretion of Formaldehydogenic Steroids in Diabetics. 5. The Time Course of Serum Copper Concentrations of Patients with Myocardial Infarctions. 6. Questionable Significance of the Ratios of Phosphorus, Nitrogen and Sulfur with Reference to Metabolic Studies in Man. 7. Clinical Conference on Metabolic Problems: Acromegaly. Abstracts. Book Reviews.

VISUAL OPTICS

Selected Studies in Visual Optics. By Joseph I. Pascal, B.S., M.A., O.D., M.D. (Pp. 860 with 138 figures. £5 6s. 3d.) St. Louis: The C. V. Mosby Company.

Contents: 1. Lenses—Physical and Optical Properties. 2. A Thimbleful of Trigonometry. 3. Transposition of Lenses. 4. Toric Lenses. 5. The Radian Method in Ophthalmic Calculations. 6. A physiological Approach to Refractive Errors. 7. Refraction in General Optics and in Visual Optics. 8. Ophthalmic Calculations by the "Dam" Formula. 9. Observations on Visual and Orthoptic Exercises. 10. Various Aspects of Lens Effectivity. 11. A non-Geometric Exposition of the Theory of Retinoscopy. 12. Fundamentals of Dynamic Retinoscopy. 13. Principles and Application of Cylinder Retinoscopy. 14. Specialized Techniques in the Practice of Retinoscopy. 15. The Concept of Reduced Vergence, Reduced Power, and Reduced Distance. 16. Axes and Angles of the Eye. 17. The Cardinal Points and Planes. 18. The Cardinal Points in the Eye. 19. Role of the Cardinal Points in the Correction of Ametropia. 20. Some Observations on Myopia. 21. The Images Formed by the Eye. 22. Calculating Stereoscopic Vergence. 23. The Stereoscope as an Aid in the Correction of Ametropia. 24. The Accommodative Unit in Corrected Ametropia. 25. The Mechanism and Measurement of Accommodation. 26. The Mechanism and Measurement of Convergence. 27. Observations on the Functions of Accommodation and Convergence. 28. Binocular Duction Tests and Their Significance. 29. A New Approach to Cross Cylinder Tests. 30. Theoretical Basis of Cross Cylinder Tests. 31. Cross Cylinder Methods vs. Line Chart Methods. 32. True and Spectacle Correction of Ametropia. 33. Self-Correction vs. Lens Correction in Hyperopia. 34. Specialized Training of the Visual Functions. 35. Fundamentals of Geometrical Optics—Reflection. 36. Refraction, General Laws and Phenomena. 37. Refraction by Prisms. 38. Refraction by Spherical Surfaces. 39. Refraction by Thin Lenses. 40. Thick Lenses and Lens Combinations. 41. Thick Lenses Between Different Media. 42. Lens Form Relative to Lens Power. 43. Optical Oddities of Contact Lenses. 44. Optical and Visual Effects of Tilted Lenses. 45. A Graphic Study of the Ocular Muscles. 46. Diplopia Fields as Charted from Benzene Ring. Appendix.

In ophthalmology the study of optics is to most people a necessary bore. If unappetizing fare can be presented in a palatable form, assimilation is promoted. This is exactly what Pascal's volume does. Men like Helmholtz and Donders have written learned and ponderous works on the optics of vision—mathematical and exhaustive. Pascal has provided a book which is, in fact, a series of footnotes, easy-to-read explanations, a general 'where-is-it?' of the refraction of the eye.

A glance at the chapter headings will indicate the wide scope of his observation on every aspect of refractive technique, spectacle correction and muscle imbalance.

The paragraphs have sub-titles, the figures are simple and the mathematics also, as far as is possible.

Here is a man with 40 years' teaching experience and a vast knowledge of optics and refractive technique to whom the determination of ocular dysfunction and its correction is an absorbing study. He writes in a simple, conversational style and assumes that the reader starts from zero—which may not be far wrong for many of us who have practised too long without stopping to ask how and why.

For this reason it is a useful book, a comprehensive *vade mecum* for all who need to know a minimum about visual optics.

CAUSES OF DEATH

Annual Epidemiological and Vital Statistics 1947–1949. Part I: Vital Statistics and Causes of Death. (Pp. 746. 70s.) Geneva: World Health Organization. 1952.

Contents: 1. Population. 2. Vital Statistics. 3. Causes of Death. 4. Life Tables. Annexes. French Alphabetical Index. English Alphabetical Index.

Statistical documentation has just been enriched by a comprehensive work, Part I of the *Annual Epidemiological and Vital Statistics, 1947–1949*, entitled 'Vital Statistics and Causes of Death'.

Part II, to appear later, will deal with cases of and deaths from notifiable diseases. The whole work is the second of a series published by the World Health Organization, in continuation of the *Annual Epidemiological Reports* formerly issued by the League of Nations Health Organization.

The sources drawn on for this work are the official reports published by the national and municipal statistical and public-health administrations, supplementary information supplied by these administrations, and the replies of various countries to certain questionnaires sent them by the Statistical Office of the United Nations.

After a foreword and introduction, already containing much information, the first section of the volume indicates the area and population of the countries of the world and the population of selected large cities, according to the most recent censuses. The following section deals with vital statistics between 1946 and 1949: nuptiality, natality, fertility, general mortality, infant mortality, and neonatal mortality; for purposes of comparison, the mean figures for the period 1936-8 are also shown in these tables. Section III (Causes of death) is by far the longest in the volume. It gives, for each country, the distribution of the total deaths by cause, in accordance with the headings of the 1938 International Abridged List. These data are shown by sex for the period 1946-9 in a first series of tables; next, they are shown by sex and by age for each year separately. Other tables are devoted to: the mortality-rates for specific diseases in about 50 large cities and in selected groups of towns; deaths of children under five years from selected causes, by age and by sex; and deaths from cancer and tuberculosis according to location, age, and sex. Section IV contains extracts from the most recent life-tables: mortality-rates, number of survivors, and expectation of life by sex at specified ages.

Graphs showing the evolution from the beginning of the century of mortality from specified infectious diseases in some countries, geographical maps of the Regions of the World Health Organization, and the membership of WHO at 31 December 1951, are annexed. An alphabetical index is included for convenience in consulting this voluminous work.

As is pointed out in the foreword, these statistics should be treated with a certain amount of caution and care should be exercised in making comparisons between them. In view of the diversity in the methods and extent of registration, as well as the still frequent lack of accuracy in diagnosing causes of death, the international comparability of statistical data is far from being perfect. It remains nevertheless true that this work supplies the most complete and authoritative information on the question.

CORRESPONDENCE

THE TRANSVAAL GOLFING SOCIETY OF THE MEDICAL ASSOCIATION

'J. VAN NIEKERK CUP'

To the Editor: Entries are invited for a 4-Ball—Better-Ball Stableford Competition, to be held on Sunday afternoon, 14 December 1952, at The E.R.P.M. Golf Course, for the Cup presented by Dr. J. van Niekerk.

The Competition is open to all registered Medical Practitioners who are members of the Medical Association of South Africa.

Entrants are urged to enter as couples, but the Committee will arrange partners for individual entrants if possible. Opponents may be selected by 'mutual arrangement, and should be duly notified to the Honorary Secretary. All other entrants will be drawn in *fours*, and times of play will be posted to each entrant in due course.

Entries must reach the undersigned not later than Saturday, 6 December 1952, stating name, handicap, partner (if any), and opponents (if arranged), together with postal address.

The *Annual General Meeting* will take place after the presentation of prizes.

AGENDA

1. Presidential Report.
2. Election of office bearers for the ensuing year.
3. General.

M. K. Tucker,
Honorary Secretary: Treasurer of the Transvaal Golfing Society (Medical Association of South Africa).
Telephone 23-8133.
81, Pasteur Chambers,
Jeppe Street,
Johannesburg.

THE COLLEGE OF PHYSICIANS AND SURGEONS OF SOUTH AFRICA

To the Editor: Yesterday there was held a well-attended meeting of all the specialists of Cape Town, at which certain views were expressed *a propos* the College. Time did not permit adequate opportunity for ventilation of opinions. A few speakers tried to indicate their sincere feelings on the matter, and unless the approach is sincere at this stage the project is doomed to failure.

The remarks of some of these last-named speakers may have been interpreted as antagonistic. Speaking for myself and for at least some others, may I attempt to indicate more clearly certain opinions. These affect the views on the legitimate purpose and very real need for such a College.

Firstly, some of us could not accept a loose distinction between 'academic' and some other, entirely nebulous form of knowledge and instruction. Certainly, what may be considered purely academic for the needs of one type of practice is nothing of the kind for another. The terms 'basic' and 'advanced' knowledge or instruction are more appropriate. Unless we are to return to the concepts of barber surgeons and their counter-parts, no right-thinking persons could possibly aim at curtailing general basic training according to current ideas, with a reasonable appreciation that such ideas are not the laws for all time. Unfortunately, the vast majority of immediately useful lives can be occupied suitably in the pursuit of knowledge for its own sake for only a short while. Unfortunately, again, material available at any given time for instruction may be limited, just as more fortunately the actual scope of work of the practitioner is limited by the circumstances in which it is carried out.

The universities are fully aware of these matters. They are embarrassingly conscious of certain limitations and defects, do all they can to remedy these and work on the principle of giving balanced basic instruction that should give an *approach* to the future practice of medicine. If there are blind-spots in their vision, the profession should draw attention to them by informed and constructive criticism, but should leave to them the preliminary instruction and examination of all future practitioners. These matters could be argued back and forth but some of us feel that we would not give support to a College that conducts a qualifying medical examination. We are adamant on this point.

The second principle is different. It affects the attitude to advanced or expert knowledge of a particular scope of medical practice. The emphasis should be on expert and practice rather than on specialism as at present defined.

Superb expertness is very rare. Nevertheless, its attainment is a real ambition to be encouraged. There are heartening signs of unit and individual achievements in this country of which we can be proud. Through the contacts of a College these should be encouraged, nurtured and used for the benefit of those seeking greater efficiency.

Here is the need for a College; there is no other. In attaining such a goal the College should actively concern itself with the placing of interns, trainees and apprentices. It must maintain contact between its members and encourage the search for proficiency in all spheres of medical endeavour. It should seek out and recognize such proficiency. It should also admit to its company, through examinations of high standard, but with emphasis on immediate particular needs, those who would diligently seek to follow its lead. Such a College would undoubtedly receive the whole-hearted support of those who showed misgivings at the meeting.

In the pamphlet circulated to the profession, there is a peculiar distinction between 'specialists' and general practitioners. This is reflected in different fees for membership. If expert and practice are the real aims, as they should be, such distinction falls away.

It was suggested at the meeting that those who had reservations might pay the fee, attend the inaugural meeting, and, if dissatisfied, withdraw their subscription. Rather than do this, some of us would prefer to seek admission later if our misgivings are dispelled and donate the extra sum of money.

Medical School,
Mowbray, C.P.
1 November 1952.

J. F. P. Erasmus,
Professor of Surgery.

To the Editor: The attention of all medical practitioners is drawn to the fact that certain members of the profession desire that more time should be given to individuals for consideration of the Draft Constitution of the proposed College. The responsible Committee has acceded to this suggestion and accordingly has postponed the date for the return of application cards from 'Founders' to 31 March 1953.

Actually it is possible to apply to be recognized as a Founder at least up to the time of incorporation of the College as a Company (see Article 5); but inevitably as a time must be fixed for an inaugural meeting, a time must also be fixed for the closing of the list of 'Founders' to whom information must be sent informing them of the date of the inaugural meeting in order that they may in person or by proxy be present to elect the first Council and discuss any amendment to the draft constitution.

ERRATUM

Kindly note that an error appeared in the draft constitution sent out earlier. On *page 13* under *Article 15* (*1*) the abbreviation for a Fellow of the College of Physicians of South Africa should appear as '*F.C.P.* (*S.A.*)' and not as printed.

On behalf of the Committee

L. B. Goldschmidt, F.R.C.S. (Eng.) *Chairman.*
M. Cole Rous, F.R.C.S. (Eng.) *Honorary Secretary.*
Cape Town.
5 November 1952.

Public Service Commission

VACANCY IN THE PUBLIC SERVICE

1. The attention of medical practitioners, registered with the South African Medical and Dental Council, is drawn to an advertisement appearing in the *Government* and *Provincial Gazettes* of this week, inviting applications for a vacant post of Medical Officer (salary scale £900 × 50—£1,150) in the Department of Health (Mental Hospital Service).

2. In addition to salary a cost-of-living allowance at the rate of £320 per annum (married) and £100 per annum (single) is payable at present.

3. It is emphasized that full and detailed particulars of qualifications and previous experience must be furnished but original certificates and testimonials should not be submitted. Application forms (Z.83 and P.S.C.8(a)) are obtainable from the Secretary, Public Service Commission, Pretoria, to whom filled in forms must be addressed.

4. The closing date for the receipt of applications is 6 December 1952.

(38215)

The Medical Association of South Africa : Die Mediese Vereniging van Suid-Afrika

AGENCY DEPARTMENT : AGENTSKAP-AFDELING

DURBAN

112 Medical Centre, Field Street. Telephone 24049

PRACTICES FOR SALE : PRAKTYKE TE KOOP

(PD10) General practice, Natal inland city. European and non-European patients. Scope for midwifery and surgery. Premium required £1,250, cash preferred, but terms will be considered. For immediate sale.

(PD13) Natal Lower South Coast practice, near Pondoland border, suitable for retired doctor. Area developing and large Police holiday camp in vicinity. Excellent climate and very good fishing. Premium required £400, includes good stock of drugs and dressings, instruments and dispensary furniture. House for sale £1,800, including stand of one-third morgen. Bond available. For immediate sale. Owner having taken a full-time appointment.

(PD14) Non-European dispensing practice in rapidly expanding industrial and residential area, 11 miles from centre of coastal City. At present no night or after hour calls, no week-end or surgical work undertaken. Practice could be improved if run on a full-time basis, otherwise ideal as a subsidiary practice. Turnover for twelve months ended 31 June 1952 averaged £170 per month. Total expenses including car and travelling expenses, £50 to £60 per month. Premium £750 including drugs, instruments and furniture.

LOCUM REQUIRED

(122) Pondoland. From 1 December 1952 to 30 June 1954. Partnership practice and the senior partner will be remaining in the practice. The partners do not work after 4.30 p.m. during the week and 1 p.m. on Saturday. Mostly Native work. Salary £60–£75 per month, depending on experience, plus free board and lodging, and transport allowance, if locum uses his own car.

(121) Natal South Coast. From 14 December for 5 weeks. Must possess own car. Petrol, oil and servicing allowance will be made. The practice is a mixed one, very little night work. With the exception of two regular trips into the country, the practice is conducted almost entirely within the vicinity. Salary £20 per week.

(116) Near Durban. January 1953. £2 12s. 6d. per day, board, lodging. Own car desirable. Afrikaans essential. Mixed general practice, with R.M.O. appointment.

(119) Northern Natal. 1 January or earlier 26/27 December for one month. £3 3s. 0d. per day, free board and lodging, petrol and oil. Locum must possess own car, £10 car allowance will be made. General mixed practice with mine appointments.

(106) Zululand. From 30 December to 30 January 1953. £2 12s. 6d. per day, car allowance. Single man or woman. Must possess own car. General country practice. Senior partner of the firm will be present throughout living 8 miles away.

(120) Near Durban. From 1 January 1953 for approximately 14 days. £2 12s. 6d. per day, board and lodging and car expenses. Locum should possess his own car. Must be able to dispense as this is a mixed general dispensing practice for non-Europeans only. Not much night work. Suitable for elderly man.

(123) East Griqualand. From 1 January for one month. £2 12s. 6d. per day, free board and lodging and car allowance. Locum must possess his own car. This is a general practice with small R.M.O. and D.S. appointments. Very occasional night and week-end work. No major surgery. One weekly district clinic tour.

ASSISTANT REQUIRED

(124) Northern Natal. From 1 January 1953. Assistantship with view to partnership. General country practice. £75 per month. Excellent opportunity for suitable assistant.

JOHANNESBURG

Medical House, 5 Esselen Street. Telephone 44-9134-5, 44-0817
Mediese Huis, Esselenstraat 5 Telefone 44-9134-5, 44-0817

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(Pr/S34) Progressive Transvaal dispensing practice. Average gross income £3,500 per annum. Excellent surgical facilities. Premium required £2,500 and the following terms could be arranged: £1,250 deposit and the balance over a period of 18 months, starting 3 months after the cash payment. The premium includes drugs, furniture and fittings, estimated at £800. Two transferable appointments worth £230 per annum.

(Pr/S51) Transvaal hospital town dispensing practice. Gross income over £6,000 per annum. It is essential that this practice be worked by two men, one to be a surgeon. Premium required £3,500, and terms could be arranged. Practice can only be sold if house and surgery are bought for cash. Details on application.

(Pr/S54) Established branch practice in Johannesburg. Annual income £1,000. Premium required £500. Very much scope for expansion.

(Pr/S55) Well-established practice in northern suburbs of Johannesburg. Will suit an English-speaking doctor. Premium required £1,000. Full details on application.

(Pr/S57) Small Johannesburg practice with excellent scope for expansion. Full details on application.

(Pr/S58) Very well-established Johannesburg practice. Average annual income £5,500 to £6,000. Premium required £4,000 and terms will be arranged. Three months' introduction will be given. Details on application.

(P/O10) Old-established firm in large centre in Rhodesia requires **two** gentile partners as soon as possible. Please apply for full details.

(P/O13) A Jewish partner is required for an excellent Eastern Transvaal dispensing practice. Must be a married man and over thirty years of age, and must have some surgical experience.

(Pr/S59) Goed-gevestigde Vrystaatse praktyk. Gemiddelde jaarlikse inkomste £4,000. 'n Aanstelling teen £300 per jaar kan waarskynlik oorgedra word. Die premie wat gevra word is £2,500 en terme kan gereel word. Dit sluit 'n voorraad medisyne van £700, meubels van £200 en instrumente ter waarde van £400, in.

MEDICAL EQUIPMENT

(E/O31) Siebert Microscope, mechanical stage, 3 eye-pieces, oil immersion lens. £50.

(E/O38) Jones Waterless Basal Metabolism Apparatus. £80.

(E/O39) Cambridge Portable Electrocardiograph, with extra attachments, complete, for chest leads. £80.

(E/O41) Microscope, Bausch & Lomb. Condition as new. Two eye-pieces. Oil high and low power lenses. Shifting stage. Lock-up case. £55.

(E/O44) 'Peerless' Diathermy machine, with accessories and Caput applicator. £65.

(E/O45) Birtcher Challenger portable model Diathermy machine as new. Price £130 o.n.o.

(E/O46) Infra Red Lamp with folding stand, as new. £10.

(E/O47) Wax bath. £12.

(E/O48) Complete set arms and legs water bath. £12.

(E/O49) Short-wave Diathermy (Luckenbach). Excellent condition. £100.

(E/O50) Prometheus Lamp for theatre on high adjustable stand, in excellent condition. Price £15 or o.n.o.

* * * *

KAAPSTAD : CAPE TOWN

Posbus 643, Telefoon 2-6177: P.O. Box 643, Telephone 2-6177

PRAKTYKE TE KOOP : PRACTICES FOR SALE

(1010) Cape Town. Nucleus of practice with excellent scope for expansion. Average annual receipts £1,100. Premium

required, £850, which includes drugs, few instruments, half-share furniture. Consulting rooms shared with specialist.

(1016) Eastern Province. Unopposed solus practice. Average annual receipts £2,471. Premium for goodwill £1,000. Drugs, furniture and instruments offered at £190. Terms available. Attractive modern home to rent at £8 10s. p.m. Rental roomy surgery, £3 p.m.

(992) South-Eastern Cape hospital town. Premium required £1,500, which includes drugs, furniture and instruments worth approximately £1,350. Flat plus surgery to let at £6 p.m. Gross average annual cash takings, £2,500. Easy terms. Owner wishes to specialize.

(1101) Better class solus practice conducted from centre of growing industrial coastal city. Practice is expanding; reason for sale, vendor is specializing. Introduction will be given. Earnings £2,300, premium £1,250. Terms could be arranged.

(1187) BOLANDSE HOSPITAALDORP. Goedgevestigde praktyk. Inkomste ongeveer £2,500 per jaar. Premie verlang £1,000. Huis te huur of te koop.

ASSISTENTE/PLAASVERVANGERS VERLANG
ASSISTANTS/LOCUMS REQUIRED

(887) Cape Town. Temporary assistant from 1 December for approximately 4 months. Industrial practice.

(1158) Oostelike Provinsie. Vir maand Desember £3 0s. 0d. per dag plus kartoelae, plus losies.

(1165) Cape Town. From 1 January for 3 weeks. £3 3s. 0d. per day, plus all found. Preferably with some experience and capable of giving anaesthetics.

(1167) Namaqualand. 'n Afrikaanssprekende assistent vanaf 1 Januarie 1953. Moterkar word voorsien.

(1168) Boland. Vanaf 1 Desember tot 22 Januarie. £3 3s. 0d. per dag en vry losies, plus kartoelaag, of kar kan verskaf word. Vrou of man met ondervinding verlang.

(1181) Eastern Cape. From 15 December to 15 January 1953.

Provincial Administration of the Cape of Good Hope / University of Cape Town:

Joint Medical Staff

CHAIR OF CHILD HEALTH

Applications are invited for the Chair of Child Health in the University of Cape Town. The appointment will be made under the terms of the Joint Staff Agreement between the University of Cape Town and the Provincial Administration of the Cape of Good Hope. It is a full-time appointment and the occupant of the Chair is not permitted to undertake remunerative private work. The salary is £2,500 per annum, plus a temporary cost-of-living allowance (at present £320 per annum for a married man and £100 per annum for others).

The professor is Head of the University Department of Child Health and of the teaching department of Paediatrics. He will be in charge of paediatric beds in Groote Schuur Hospital and in the new Red Cross Children's Hospital when completed.

Applications should state age, experience, qualifications, publications and research interests, and should give the names of two referees. Applications should reach the Registrar, University of Cape Town, Private Bag, Rondebosch (from whom a memorandum giving the general conditions of appointment should be obtained) not later than 31 January 1953. The University reserves the right to recommend the appointment of a person other than one of the applicants or to recommend no appointment.

Nasionale Hospitaal, Bloemfontein

VAKATURE: VOLTYDSE ORTOPEDIESE SJIRURG

Aansoeke word ingewag van geregistreerde ortopediese sjirurge vir die pos van voltydse ortopediese sjirurg by die Nasionale en Tempe Provinsiale Hospitale, om dienste so spoedig moontlik te aanvaar.

Die salaris aan die pos verbonde is £1,750 per jaar plus lewenskostetoelae.

Die betrekking is pensioendraend en die aanstelling word gemaak ooreenkomstig die Hospitaalregulasies soos gewysig.

Aansoeke met vermelding van ouderdom, kwalifikasies en ondervinding moet vergesel gaan van gesertifiseerde afskrifte van sertifikate en getuigskrifte en moet die ondergetekende sonder versuim bereik.

J. W. Wessels
Geneesheer-Direkteur

4 November 1952 (A375639)

Departement van Onderwys, Kuns en Wetenskap

VAKATURES

Die aandag van belangstellendes word gevestig op 'n kennisgewing in die *Staatskoerant* van 7 November 1952 waarby aansoeke om die volgende betrekkings gevra word:—

Betrekking	*Inrigting*	*Salarisskaal*
Mediese beampte	Seunskool vir Liggaamlik-afwykendes, Kimberley	£900 × 50–1,150
Tandarts ..	Seunskool vir Liggaamlik-afwykendes, Kimberley	£900 × 50–1,050

Benewens die aangeduide salarisskale word lewenskostetoelae betaal volgens die skale wat op Staatsamptenare van toepassing is.

Afskrifte van die advertensie en aansoekvorms is van die Sekretaris van Onderwys, Kuns en Wetenskap, Nuwe Standaardbankgebou, Pretoria, verkrygbaar.

Aansoeke sal tot 6 Desember 1952 ingewag word. (38139)

Begbie Medical Benefit Fund

Applications are invited for the appointment of a Medical Officer to the above Fund. The doctor appointed will be expected to give members all the usual attention and services expected from a general practitioner.

Please write for further details to the Honorary Secretary, Begbie Medical Fund, P.O. Box 192, Middelburg, Transvaal.

This appointment has the approval of the Medical Association of South Africa.

St. Monica's Home

OBSTETRICAL HOUSE SURGEON

Applications are invited for the above-named position and should reach the Honorary Superintendent, St. Monica's Home, Lion Street, Cape Town, on or before 15 December 1952.

The successful applicant will commence duty on 15 January 1953.

Margaret Ballinger Home

ROODEPOORT

Applications are invited for the part-time post of honorary specialist in physical medicine at the Margaret Ballinger Home for Convalescent Bantu Children.

Further particulars obtainable from and applications to be submitted to The Secretary, Margaret Ballinger Home, P.O. Box 233, Roodepoort.

Nelspruit Munisipaliteit

VAKATURE: DEELTYDSE MEDIESE AMPTENAAR VAN GESONDHEID

Aansoeke word hiermee ingewag vir die aanstelling as deeltydse Mediese Amptenaar van Gesondheid vir Nelspruit dorp en lokasies teen 'n vergoeding van £300 per jaar, lewenskoste ingesluit.

Applikante moet tweetalige S.A. burgers en gekwalifiseerde mediese praktisyns wees.

Die geslaagde applikant sal die gebruiklike ooreenkoms betreffende die pligte en voorwaardes van aanstelling van deeltydse geneeskundige gesondheidsbeamptes van plaaslike owerhede met die Stadsraad moet aangaan. Die aanstelling sowel as die ooreenkoms sal onderhewig wees aan die goedkeuring van die Minister van Gesondheid. Afskrifte van voorgestelde ooreenkoms lê vir insae by die ondergetekende.

Verseëlde aansoeke met vermelding van ouderdom, kwalifikasies, ondervinding en vroegste datum waarop die pligte aanvaar kan word moet die ondergetekende bereik nie later nie dan Saterdag 29 November 1952.

P. D. Branders
Stadsklerk

Munisipale Kantore
Nelspruit
3 November 1952
Kennisgewing No. 68/1952

Witbank Coalfields Benefit Society

Applications are invited from registered medical practitioners for appointment as Medical Officer to any, or all, of the Society's Units, listed below, in the Middelburg, Transvaal, district.

The Medical Officer will be required to provide his own consulting room, conveniently situated, and render ordinary medical and surgical treatment to members and their dependents (European), making at least two visits per week to the Mines, on each of which there is a consulting room.

1. Blesbok Colliery.
2. Koornfontein Colliery.
3. Raleigh Colliery.
4. New Schoongezicht Colliery.

Further details can be obtained from the Secretary, Witbank Coalfields Benefit Society, P.O. Box 26, Witbank, Transvaal. The closing date for the receipt of applications is 10 December 1952.

This appointment has the approval of the Medical Association of South Africa.

Practice for Sale

For sale a well-established medical practice in a country town with hospital facilities.

Gross income for past year exceeded £10,000, of which approximately £8,000 was paid in cash. Patients are almost entirely Afrikaans-speaking. Major surgery has been undertaken.

Only a minimum of travelling and night work. Owner is going overseas.

The practice includes £3,600 worth of modern equipment in excellent condition, furniture, fittings, drugs and motor car.

Price required £8,000 (eight thousand pounds), the terms of purchase to be cash, and the purchaser to take over practice at end of June 1953, and meanwhile will be introduced to the patients of the practice.

Only *bona fide* applicants or enquiries will be entertained and dealt with, and shou'd be addressed to 'X. Y. Z.' c/o P.O. Box 12, Bedford, C.P.

To Radiologists

FOR SALE

Young urology table with 200 MA. Unit. Rotating anode. As new. Apply 16 Leicester Mansions, 207 Jeppe Street, Johannesburg.

Transvaalse Provinsiale Administrasie

VAKATURES BY PUBLIEKE HOSPITALE

Aansoeke word ingewag van kandidate met geskikte kwalifikasies vir die onderstaande poste by Publieke Hospitale in die Transvaal.

Aansoeke moet gerig word aan die Geneeskundige Superintendent en Verantwoordelike Geneesheer van die betrokke Hospitaal en moet volle besonderhede bevat aangaande die ouderdom, professionele, akademiese en taalkwalifikasies, ondervinding en huwelikstaat van die applikant en moet voorts 'n aanduiding bevat van die vroegste datum waarop diens aanvaar kan word:

Lewenskostetoelae tans betaalbaar aan voltydse werknemers:

Salaris	*Lewenskostetoelae*	
	Getroud	*Ongetroud*
Oor £350 ..	£320 p.j.	£100 p.j.

Van persone wat aangestel word, sal verwag word om bevredigende sertifikate in te dien, asook om hulle te onderwerp aan 'n geneeskundige ondersoek by die betrokke hospitaal.

Aansoek vorms is verkrygbaar van enige Transvaalse Publieke Hospitaal of die Provinsiale Sekretaris, Afdeling Hospitaaldienste, Posbus 2060, Pretoria.

Benewens jaarlikse salaris en lewenskostetoelae ontvang voltydse werknemers spoorwegkonsessie en word verlof toegestaan ooreenkomstig die hospitaal verlofregulasies.

Die sluitingsdatum van aansoeke vir die poste is 1 Desember 1952.

Hospitaal	*Vakature*	*Emolumente*	*Opmerkings*
Boksburg-Benoni	Kliniese Assistent (1)	£620, 780, 820, 860	Geregistreerde mediese praktisyn. Gekwalifiseerd vir ten minste 2 jaar.
	Deeltydse Radioloog (1)	£205 per jaar	Geregistreerde mediese praktisyn. D.M.R. 7 sessies per week.
Verre - Oos - Rand, P.K. New State Areas	Ongevalle-beampte (1)	£620, 780, 820, 860	Geregistreerde mediese praktisyn.
Die Johannesburgse Hospitaalbestuur en die Universiteit van die Witwatersrand			
	Chirurgiese Registrateur (2)	£620, 780, 820, 860	Geregistreerde mediese praktisyn. Gekwalifiseerd vir ten minste 2 jaar.

(38289)

Praktyk te Koop

Ou gevestigde praktyk in groot Westelike Provinsie dorp met goeie skole en kolleges, 45 myl van Kaapstad. Geneesheer middel Oktober skielik oorlede. Eksekutrise sal redelike offers vir die moderne woning op groot erf en spreekkamers sowel as 'n premie vir die praktyk oorweeg.

Instrumente (wat X-straal en Diathermie Apparate insluit sowel as spreekkamer meubels en medisyne) kan teen waardering oorgeneem word.

Die gros jaarlikse inkomste oorskry £3,000.

Skryf aan 'A.N.Y.', Posbus 643, Kaapstad.

Assistant Required

Assistant required for Johannesburg partnership practice, mainly non-European. Applicant preferably to be married, have telephone available and some experience. To commence as soon as possible. Salary £100 per month, plus petrol allowance. Apply stating age, experience, etc. to P.O. Box 43, Jeppe, Johannesburg.

Practice for Sale

Southern Rhodesia hospital town. One appointment (£100 per annum). Opposition negligible. House and surgery for sale or rent. House £3,000. Rent £15 monthly, bond to be taken over. Reply 'A. O. B.', P.O. Box 643, Cape Town.

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